DOCUMENT RESUME

ED 024 104 24 CG 003 344

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A Comparison of a Selected Dimension of Counselor and Non-Counselor Behavior. Final Report.

Miami Univ., Coral Gables, Fla.

Spons Agency- Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No- BR-7-D-007

Pub Date 30 Apr 68

Grant- OEG-2-7-070007-3031

Note- 227p.; A project submitted in partial fulfillment of the requirements for the degree of Doctor of Education.

EDRS Price MF-$1.00 HC-$11.45

Descriptors- *Counselor Characteristics, *Empathy, *Research Projects

To determine whether or not counselors are demonstrably different from noncounselors in terms of empathy, the concept of empathy was translated into an operational variable consisting of an affective (tonal) component and a cognitive (perceptual) component. Some 11 items judged as affect-laden by two rater groups were selected from the Squires Empathy Test. A group of counselors and a control group of graduate science students were selected by random sampling and tested individually. The affective component of empathy was assessed by obtaining four physiological measures: (1) skin conductance, finger blood volume, heart rate, and respiration rate. The cognitive component was assessed by obtaining oral response measures of the subject's interpretation of a tape-recorded dramatic excerpt followed by a slide o f six pictures. It was found that the empathic behavior of counselors differed from that of noncounselors with respect to changes in finger blood volume, although no differentiation could be made with the other physiological measures. It was found that counselors and noncounselors do not differ in their respective abilities to perceptualize in empathetic situations. (IM)

ED024104

BR-7-D-007
PA-24

FINAL REPORT

Project No. 7-D-007

Grant No. OEG-2-7-070007-3031

A COMPARISON OF A SELECTED DIMENSION OF COUNSELOR AND NON-COUNSELOR BEHAVIOR

April 30, 1968

U.S. DEPARTMENT OF

HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

CG 003 344

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May 20, 1968

The research reported herein was performed pursuant to a grant with the Office of Education U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent Official Office of Education position or policy.

U.S. DEPARTMENT OF

HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

Gellen, Murray I. (Ed.D. - Guidance and Counseling)

A COMPARISON OF A SELECTED DIMENSION OF COUNSELOR AND NON-COUNSELOR BEHAVIOR (May, 1968). Abstract of a Doctor's Project at the University of Miami, Coral Gables, Florida. Project supervised by Professor Lewis E. Walton.

Statement of the Problem

The problem of the study was to determine whether or not counselors are demonstrably different from non-counselors in terms of a selected dimension of behavior, empathy. The concept of empathy was analyzed and translated into an operational variable consisting of an affective (tonal) component and a cognitive (perceptual) component. The purpose of the study was to measure the above components as potentials for distinguishing counselors from non-counselors.

Procedures

Eleven items judged as affect-laden by two rater groups (six counselor educators and three doctoral students) were selected from the Squires Empathy Test. Thirty counselors and thirty counselor trainees (constituting the counselor group) and thirty graduate science students (constituting the non-counselor group) were selected by random sampling and tested individually. Each item presented to a subject was composed of a tape-recorded dramatic excerpt followed by its appropriate slide of six pictures. All items were taken from a variety of television plays.

The affective component of empathy, tone, was assessed by obtaining four physiological measures of skin conductance (GSR), finger blood volume (FBV), heart rate (HR) and respiration rate (RR) from each subject as he reacted to each test item. The cognitive component was assessed by obtaining oral response measures of the subject's interpretation of the slide presented to him. An additional measure of

latency of response was also obtained. All physiological measures were obtained simultaneously during the entire item presentation and response period. The hypotheses tested were:

(1) there are significant differences among the affective responses of counselors, counselor trainees and graduate science majors.

(2) there are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors.

Summary of the Findings

Overall, point-to-point and trend analyses of the data were made by use of simple, covariate and multivariate analyses of variance. All tests of significance were accepted at the five percent level. Findings indicated that there were no significant differences among the subject groups in terms of three physiological variables, namely, skin conductance, heart rate and respiration rate. However, in respect to changes in finger blood volume, significant differences were found among the groups. There were no significant differences among the groups in terms of cognitive and response latency measures.

Conclusions

The following conclusions are presented in light of the findings and are not applicable beyond the scope of this study.

1. The empathic behavior of counselors is different from non-counselors in respect to changes in finger blood volume.
2. Counselors cannot be differentiated from non-counselors in respect to the other physiological variables assessed in this study.
3. Counselors and non-counselors do not differ in their ability to perceptualize in empathic situations.

THE UNIVERSITY OF MIAMI

A COMPARISON OF A
SELECTED DIMENSION OF
COUNSELOR AND NON-COUNSELOR BEHAVIOR

BY

Murray I. Gellen

A PROJECT

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Education

Coral Gables, Florida

May 1968

THE UNIVERSITY OF MIAMI

A project submitted in partial fulfillment of
the requirements for the degree of
Doctor of Education

Subject

A Comparison of a Selected Dimension of Counselor and Non-counselor Behavior

Murray I. Gellen

Approved:

Lewis E. Walton, Ph.D. Professor of Education Chairman of Project Committee	Dean of the Graduate School

ACKNOWLEDGMENTS

Sincere expressions of gratitude are offered to the many people who have provided assistance to the writer in his development and completion of this study. Much appreciation is extended to the members of his doctoral committee for their cooperation and continued support as well as for having read the manuscript and offered constructive criticisms and suggestions pertinent to its improvement. Specific thanks are expressed to Dr. Lewis E. Walton, chairman, for his counsel and leadership, and to Dr. Carolyn S. Garwood and Dr. George J. Mouly for their numerous courtesies and general encouragement. To Dr. Carl D. Williams a special note of thanks is given for the many valuable hours and much attention he has devoted to helping the writer develop information and understandings concerning technical problems of this project. Also grateful acknowledgment is given to Dr. Joseph E. Barton, Dr. Bernard Black, Dr. Eveleen

Lorton, and Dr. Elizabeth Metcalf as well as the writer's colleagues Mrs. Juliett H. Lewis, Mr. Thomas Cassese, and Mr. Joel Crausman for their assistance in the early preparation for this study. To Dr. Herbert W. Wey and Dr. Samuel Ersoff thanks is expressed for their general encouragement and support. The writer is also appreciative of consultations held with the director of the University of Miami Biometric Laboratory Dr. Dean J. Clyde and his assistant, Mr. H. Richard Peto. A note of appreciation is also expressed to Dr. Samuel I. Squires for his kind permission to utilize items from his test.

Thanks are also due to Miss Nikki Watts for her secretarial assistance and to Mrs. Inez Stephan for her many hours spent on typing the manuscript for this project.

The writer is exceedingly grateful to his wife Joan whose understanding attitude and sympathetic interest made this entire venture possible. It is to her and his two children, Susan and David, that this project is dedicated.

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CHAPTER I

A COMPARISON OF A SELECTED DIMENSION OF COUNSELOR AND NON-COUNSELOR BEHAVIOR

Statement of the Problem

Thus far counselor educators have found it difficult, if not impossible, to identify clearly and definitively the personal characteristics that predict competency in counseling. Furthermore, according to Warnath,[1] those personality characteristics identified in the training setting of potential counselors are not always the same as those needed on the job later. Hobbs[2] suggests that perhaps the promising candidate might be one who has a broad education with a limited amount of psychological training. Cottle[3] states that it is not apparent whether the characteristics of counselors in each area and level of counseling are the same or different. One question to consider, then, is: need the characteristics for each successful counselor be the same whether in an educational institution at the elementary, secondary, or college level? Cottle cites previous studies which attempt to identify and appraise personal characteristics of counselors but considers them futile efforts in that:

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[1] Charles F. Warnath, "Ethics, Training, Research: Some Problems for the Counseling Psychologist in an Institutional Setting," Journal of Counseling Psychology, III (Winter, 1956), pp. 281-282.

[2] Nicholas Hobbs, "The Compleat Counselor," Counseling: Readings in Theory and Practice, ed. John F. McGowan and Lyle D. Schmidt (New York: Holt, Rinehart and Winston, Inc., 1962), p. 53.

1. They are merely lists of opinions of the people who make them.
2. They do not distinguish between counselors and other members of school personnel.
3. Traits of successful counselors vary so much that it is difficult to select one list that is satisfactory.

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[3] William C. Cottle, "Personal Characteristics of Counselors: I," Counseling: Readings in Theory and Practice, ed. John F. McGowan and Lyle D. Schmidt (New York: Holt, Rinehart and Winston, Inc., 1962), pp. 37-38.

4. It is the interrelation or pattern of characteristics that is important.

Not only has it been difficult to identify personal characteristics that predict competency in counseling, but it has been equally difficult to identify particular characteristic patterns of counselor behavior as distinct from non-counselor behavior. Although Abeles[4] found that, as a group, counselor trainees did present profiles on a battery of objective tests which were, in terms of the general population norms, quite characteristically distinct, nevertheless, thus far, these profiles seem to provide satisfactory criteria for neither the selection of a counselor candidate nor for the prediction of his success as a counselor. Cash and Munger[5] indicate that even with the increase in counselor education research within the last three years, there is still only a limited amount completed relative to the personality characteristics that can adequately identify the potential or successful counselor. They claim more studies are needed to establish satisfactory criteria for counselor selection. According to Hill,[6] most writers agree that selection is a continuing process, not a single event and should begin before preparation and be involved in the placement and evaluation of the school counselor. In addition to selection being considered a continuing process, Ederlee[7] suggests that the most important consideration is early identifaction of promising candidates. Whether or not the identification of counselor candidates is early or continuing knowledge of adequate selection criteria presumes the need for a clear recognition of counselor behavior patterns or personality characteristics, as well as the establishment of any academic qualifications, considered important for their professional success. Thus, a comparative study of counselor and non-counselor behavior appears to be a logical approach to identifying these patterns or characteristics.

---

[4] Norman Abeles, "The Study of the Characteristics of Counselor Trainees," (unpublished Ph.D. dissertation, University of Texas, 1958), in Dissertation Abstracts, XVIII (May-June), p. 2204.

[5] William Cash, Jr. and Paul F. Munger, "Counselors and Their Preparation," Review of Educational Research, XXVI (April, 1966), p. 261.

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[6] George E. Hill, "The Selection of School Counselors," Counseling: Readings in Theory and Practice, ed. John F. McGowan and Lyle D. Schmidt (New York: Holt, Rinehart and Winston, Inc., 1962), p. 56.

[7] Helen Ederle, "The Selection of School Counselors," Teachers College Journal, XXXV (May, 1964), pp. 224-225.

One particular form of behavior which has often been considered significant for an effective counseling relationship, according to Rogers,[8, 9, 10]

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[8] Carl R. Rogers, Client-Centered Therapy, (Boston: Houghton-Mifflin Co., 1951), pp. 28-29.

[9] Carl R. Rogers, "The Characteristics of a Helping Relationship," Counseling: Readings in Theory and Practice, ed. John F. McGowan and Lyle D. Schmidt (New York: Holt, Rinehart and Winston, Inc., 1962), pp. 218,221, and 224.

[10] Carl R. Rogers, "The Interpersonal Relationship: The Core of Guidance," Guidance: An Examination, ed. Ralph L. Mosher, Richard F. Carle, and Chris D. Kehas (New York: Harcourt, Brace, and World, Inc., 1965), pp. 53-54.

Arbuckle,[11] and Truax,[12] is the degree of empathy a counselor experiences. Blocher[13] speaks of empathy as a term not clearly differentiated from terms like sympathy and understanding and from psychological mechanisms such as projection, identification, and transference. According to Katz[14] empathy has become a part of the language of the layman as well as the philosopher, psychologist, sociologist, and any other member of the helping professions. It is generally and rather loosely referred to as a form of non-verbal communication and an apprehension of inner emotional states.

Unfortunately, empathy has remained a rather nebulous concept and one difficult to define operationally. Buchheimer[15] has recently developed a theoretical construct providing some five dimensions of empathy some of which are cognitive and some affective. He classifies tone and pace as affective while strategy, frame of reference, and repertoire of leads he sees as cognitive. These dimensions provide an interesting approach to studying the nature of empathic behavior in different groups of people. Therefore, what this study attempts to answer is the question: Is counselor behavior demonstrably unique and distinct or is it similar to non-counselor behavior in terms of the operationally-measurable components of empathy?

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[11] Dugald S. Arbuckle, Counseling: Philosophy, Theory and Practice, (Boston: Allyn and Bacon, Inc., 1965), pp. 313-315.

[12] Charles B. Truax, et al. "Toward an Integration of the Didactic and the Experiential Approaches to Training in Counseling and Psychotherapy," Journal of Counseling Psychology, XI (Fall, 1964), p. 245.

[13] Donald H. Blocher, Developmental Counseling, (New York: The Ronald Press Co., 1966), p. 146.

[14] Robert L. Katz, Empathy: Its Nature and Uses, (New York: Glencoe Free Press, 1963), pp. 1-5.

Analysis of the Problem

Rather than identify patterns of characteristics in the determination of differences between counselor and non-counselor behavior, this study sought to investigate one facet of behavior, empathy. In order to utilize empathy in this investigation it was first necessary to understand it and examine it as a concept. From this examination empathy can then be translated into operational terms.

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[15] Arnold Buchheimer, "Development of Ideas About Empathy," Journal of Counseling Psychology, X (Spring, 1963), p. 62.

The modern usage of the term empathy has been attributed to an earlier concept of aesthetic appreciation developed in 1897 by a German psychologist Theodore Lipps who used the term "Einfühlung" to designate self-awareness on the part of the observer as he confronted a work of art. "Einfühlung" was considered the tendency of the observer to "fuse" with the object that absorbed his attention. The term empathy itself has been understood as the English translation of "Einfühlung" introduced by Edward B. Titchner of Cornell during the early part of the twentieth century.[16]

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[16] Robert L. Katz, Empathy: Its Nature and Uses, (New York: Glencoe Free Press, 1963), pp. 1-2.

To conceive of empathy as an entity with specific boundaries appears somewhat futile. Definitions of it have seemingly captured its essence but careful observation prompts one to recognize it as a concept that is functional and dynamic. For example, Drever tries to be explicit by saying it is:

> ... feeling oneself into, and losing one's identity in, a work of art, a characteristic of the essentially aesthetic attitude or emotion; used sometimes by psychoanalysts of the phenomena of identification; possibly more generally characteristic of perceptual experience of a situation than has generally been held ...[17]

However, phrases such as "feeling oneself into", "aesthetic attitude or emotion", "phenomena of identification", or "perceptual experience" still refer to a concept of process. Because of this type of conceptualization writers have explained empathy as an interpersonal and intrapsychic[18] phenomenon and have expressed themselves from this frame of reference.

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[17] James Drever, A Dictionary of Psychology, (Baltimore: Penguin Books, 1961), p. 81.

[18] The term intrapsychic refers to mental processes within the individual taken to be nonsensory in nature.

Knight,[19] for example, interprets empathy by discussing its underlying psychological mechanisms. He tries to show that identification is an irreducible process but is always based upon a subtle interaction by both introjective and projective mechanisms:

> ... if I read a book or see a movie which evokes my empathy towards a certain character in the story, I put myself in _his_ place and live his experiences along with him, experiencing feelings appropriate to the situations he encounters. My own ideals and behavior are not affected for the time being as I simply go along passively with the stimulating character in the plot. I _identify_ myself with the object mainly by _projection_ of my own feelings onto him, so that I imagine him to be experiencing emotions that I am experiencing. It may be that I also _introject_ this object to produce the former kind of _identification_ ...(i.e. ... I identify myself mainly through incorporating the attributes of the object into my ego ideal) ....[20]

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[19] Robert P. Knight, "Introjection, Projection, and Identification," _Psychoanalytic Quarterly_, IX, (April, 1940), pp. 334-341.

[20] Knight, _Psychoanalytic Quarterly_, IX, p. 336.

Stewart[21] discusses empathy as a form of communication based upon the emotional tie formed between persons who seek a common goal. It involves identification with another along with respect for another. Thus, he refers to an ethical aspect involved in the empathic process which he calls "good-will". As an intrapsychic phenomenon, Fox and Golden describe it as:

> ... a transient emotional identification and the submission of the feelings released to detached critical scrutiny ...[22]

They emphasize that the behavior manifested in the empathic process is somewhat removed from the actual intrapsychic events so that an interaction in one setting may be empathic but not in another. Essentially, empathy would be dependent upon the nature of the particular interpersonal situation at the moment.[23]

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[21] David Stewart, "Psychogenesis of Empathy," Psychoanalytic Review, XLI (July, 1954), pp. 216-228.

[22] Ronald Fox and Paul Golden, "The Empathic Process in Psychotherapy: A Survey of Theory and Research," Journal of Nervous and Mental Disorders, CXXXVIII (April, 1964), pp. 328-329.

Sometimes the terms intuition, imitation, and mimicry appear to have a relationship with empathy, as Greenson indicates:

> ... imitation and mimicry also bear some resemblance to empathy but they are conscious phenomena limited to the external behavior characteristics of a person ..... Empathy and intuition are related. Both are methods of gaining quick and deep understanding. One empathizes to reach feelings; one uses intuition to get ideas. Empathy is to affects and impulses what intuition is to thinking ....[24]

Nevertheless,for a study to be scientific major concepts need to be operationalized. The importance of this idea was pointed out by Marwell[25] when he investigated the scope and variety of possible definitions of social perception in an attempt to illustrate how complex and difficult it is to utilize any one of them in empirical research. In reviewing the criticisms made by several researchers he emphasizes the importance of selecting specific dimensions of empathy rather than attempting to measure overall empathy.[26]

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[23] Fox and Golden, Journal of Nervous and Mental Disorders, CXXXVIII, p. 328.

[24] Ralph R. Greenson, "Empathy and Its Vissicitudes," International Journal of Psychoanalysis, XLI (March, 1960), pp. 418-423.

[25] Gerald Marwell, "Problems of Operational Definitions of Empathy, Identification, and Related Concepts," Journal of Social Psychology, LXIII (June, 1964), p. 89.

The concepts of empathy previously described indicate that they are complex and involve a variety of dimensions. Yet, each concept of empathy seems to indicate that one who experiences it or expresses it does so at levels of sensitivity and of intellectualization. Therefore, in order to assess empathy at these levels and in quantifiable terms, this study employed an operational definition which was concerned with a degree of feeling (affect) and perceptual ability (cognition). This type of definition made it possible to provide a denotative rather than a connotative meaning for empathy, thereby reducing its complexity as a concept and making it accessible to scientific investigation. Empathy was, therefore, defined as an affective and cognitive process of perceptualizing the experiences of other persons.

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[26] Gerald Marwell, p. 89.

According to Buchheimer[27] empathy, as a dimension of behavior defined above, can be studied on the basis of different kinds of theoretical constructs such as the predictive, role-assumption, or recipathic models. The predictive model involves an empathic person becoming the predictor of another person's behavior, that is, one assumes another person's role for a time as if he were the other person. The recipathic model, sometimes referred to as confluence, indicates a mutual psychological transference. The role-assumption model involves the psychological mechanism of introjection in which the empathic person assumes the role or activity of another person. In this study the concept of empathy was considered primarily in terms of this latter construct so that variables could be measured in terms of how subjects introjected or internalized perceived roles of others. This approach is in contrast to the psychological mechanism of projection considered in the more traditional prediction model of empathy.

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[27] Arnold Buchheimer, et al, Videotapes and Kinescopic Recordings as Situational Test and Laboratory Exercises in Empathy for the Training of Counselors, Technical Report to the U.S. Office of Education, January, 1962 to May, 1965, (New York: Hunter College of the City University of New York), pp. 2-4.

In order to determine how subjects introjected or internalized perceived roles of others, it was necessary to investigate physiological and cognitive aspects of behavior. Two components of empathy adapted from Buchheimer[28] made it possible to assess these aspects and to obtain indices of affect which are central to the concept of empathy. These components may be described as follows:

1. Tone, as the affective component, is a non-verbal dimension based upon what he would refer to as subtle expressions of warmth and spontaneity.
2. Perception, as the cognitive component, he refers to as the ability to abstract

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[28] Buchheimer, Journal of Counseling Psychology, X, p. 66.

> the core of one's concerns and to formulate them in terms acceptable to him. It is what Buchheimer would call the dimension of frame of reference.

The first of these components, tone, was assessed in this study by obtaining four physiological measures of behavior. Specifically, these were changes in skin conductance (galvanic skin responses), heart rate, respiration rate, and finger blood volume. The second component, perception, was assessed by obtaining an intellective measure of behavior by use of a verbal technique.

Purpose of the Study

The purpose of this study was to measure operationally the above two major components as potentials for distinguishing counselor behavior from non-counselor behavior.

Assumptions in the Study

The present study was based upon the following assumptions:

1. The counselors in this study are representative of counselors in general and the graduate science majors are representative of non-counselors in general.
2. Empathy, with its affective and cognitive components, is crucial to counseling.
3. Arousal is a physiological correlate of the _affective_ component of empathy.
4. Certain changes resulting from actions of the autonomic nervous system are indicators of arousal.
5. These changes can be measured in terms of heart rate, finger blood volume, respiration rate and skin conductance as input signals recorded on a dynograph.
6. The _cognitive_ and the _affective_ components of empathy can be measured by the _Squires Empathy Test_.

Hypotheses Tested

In line with the thinking of Rogers,[29, 30, 31] Arbuckle,[32] Buchheimer,[33] Truax,[34] and Katz,[35] as well as Dymond,[36] Daane,[37] Dittes,[38]

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[29] Rogers, Client-Centered Therapy, pp. 28-29.

[30] Rogers, Counseling: Readings in Theory and Practice, p. 218, 221, and 224.

[31] Rogers, Guidance: An Examination, pp. 53-54.

[32] Arbuckle, Counseling Philosophy, Theory and Practice, pp. 313-315.

[33] Buchheimer, Journal of Counseling Psychology, X, p. 62.

[34] Truax, Journal of Counseling Psychology, XI, p. 245.

[35] Katz, pp. 1-5.

[36] Rosalind F. Dymond, "A Scale for the Measurement of Empathic Ability," Journal of Consulting Psychology, XIII, p. 127.

[37] Calvin J. Daane, "A Study of Empathic Ability and Related Variables Among Trained and Practicing Counselors," (unpublished Ed.D. dissertation, Indiana University, 1955), in Dissertation Abstracts, XV (October-December, 1955), p. 2096.

[38] J. E. Dittes, "Galvanic Skin Responses as a Measure of Patient's Reaction to Therapist's Permissiveness," Journal of Abnormal Social Psychology, LV (Fall, 1957), p. 303.

Sternberg,[39] Astin,[40] and others who indicate the significance of empathy in the counseling relationship, certain postulates were formulated. For purposes of this study these postulates may be stated as follows:

1. Counselors manifest a greater degree of empathy than counselor trainees and graduate science majors.
2. Counselors, counselor trainees and graduate science majors will respond similarly to situations which require cognitive reactions.

On the basis of these generalizations, the following hypotheses were formulated and tested:

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[39] David S. Sternberg, "The Growth of Empathy: An Investigation of the Relationship Between Sensitivity to the Self-Perception of Others as Interpersonal Contact and Certain Selected Personality Variables," (unpublished Ph.D. dissertation, New York University, 1962), in Dissertation Abstracts, XXIII (July-September, 1962), p. 1082.

[40] Helen S. Astin, "A Comparative Study of the Situational and Predictive Approaches to the Measurement of Empathy," (unpublished dissertation, University of Maryland, 1957), in Dissertation Abstracts, XVIII (March-April, 1958), pp. 1091-1092.

1. There are significant differences among the affective responses of counselors, counselor trainees and graduate science majors.
2. There are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors.

The five percent level of confidence was used in testing the significance of a difference. All cognitive responses were obtained as oral replies to selected items of the Squires Empathy Test.[41] Affective responses were obtained as physiological measures of changes in skin conductance, finger blood volume, heart rate and respiration rate. All measures were collected at one sitting during the entire item presentation and response period.

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[41] Samuel I. Squires, "The Construction of a Test Designed to Measure Aesthetic Perception of Televised Drama," (unpublished Ed.D. dissertation, Boston University, 1956), in Dissertation Abstracts, XVII (January-May, 1957, 1957), p. 307.

Definition of Terms

1. counselor--an individual professionally prepared to provide guidance services at the public senior high school level--grades 10-12 and professionally employed for at least one year.
2. non-counselor--an individual who is a graduate major as defined below. It is assumed that the graduate science majors are representative of the non-counselor universe. Hence, throughout this study whenever the words non-counselor appear, they are to be interpreted to mean, the assumed representative sample, graduate science majors.
3. graduate science major--an individual who is a graduate student pursuing a major course of study in the physical and/or biological sciences as preparation for a career in the field of science or industry that is non-interpersonal of

non-social service in orientation.

4. counselor trainee--an individual who has decided to become a counselor and is presently involved in counselor preparation below the practicum level. This means that his present program may entail any courses of study relevant to theoretical foundations of guidance and counseling and any other academic areas of study. However, it is understood that he has not had any experience in actual professional counseling situations or under the supervision of a counselor educator.

5. empathy-- an affective and cognitive process of perceptualizing the experience of another as distinguished from sympathy the latter being often considered an attribute of pity or commiseration.

6. affective[42]--in this study a term referring to changes of measurable physiological responses indicated as GSR's (galvanic skin responses), finger blood volume, heart rate, and respiration rate.

7. cognitive--kinds of responses that reflect the ability to abstract and verbalize in meaningful terms that which has been experienced.

Delimitations of the Study

Although this study was concerned with identifying behavior characteristics of counselors as distinct from non-counselors, only the specific dimension of empathic behavior was investigated.

The subjects were limited to school personnel currently employed by the Board of Public Instruction of Dade County, Florida, and graduate students attending the University of Miami who volunteered to serve as subjects. The graduate students composed of (1) persons studying in the area of counselor preparation and (2) those pursuing a major course of study in the physical and/or biological sciences.

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[42] This is not to imply that these varied responses are true measures of affect or feeling but possibly evidence of physiological correlates of emotional behavior.

It was recognized that in all ex post facto experiments,[43] such factors as personality and other antecedent conditions of behavior are too diversified to be accounted for completely. Nevertheless, attempt was made to equate subjects as to age and sex.

Significance of the Study

The following questions have been raised frequently by members of the counseling profession. It is hoped that this study will provide some help in answering them.

1. What insight can be gained for establishing

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[43] George J. Mouly, The Science of Educational Research. (New York: American Book Company, 1963), pp. 150-154.

criteria for training programs for counselor candidates at different levels of professional work?

2. What possible differences in personality attributes are revealed which might afford evidence for measuring counselor effectiveness?
3. What dimensions might be discovered as possible criteria for the selection and/or preparation of counselor trainees?
4. If the counselor is different from non-counselors in any behavioral patterns or personality characteristics, to what is this difference attributed?
5. Does counselor training make one different from those who are not trained, or is it possible that the individual who chooses to become a counselor brings to the training program a personality distinct and different from one uninterested in counseling as a career?

Evidence as to whether or not there is a distinction between counselor and non-counselor behavior may provide new directions or approaches for further research concerning the identification, selection and preparation of counselors as well as for the evaluation of effective counseling.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

As mentioned earlier in the statement of the problem, certain attempts have been made to investigate the characteristics of counselor behavior as distinct from non-counselor behavior but with little success. This chapter is devoted to a discussion of research dealing with the following aspects:

1. Research in empathic behavior.
2. Research in affective dimensions of behavior.
3. Research in counseling relative to the empathic process.

The major purpose for considering these aspects is to provide a frame of reference from which to better understand underlying concepts relevant to this study.

Research in Empathic Behavior

The ability to predict another's response with any degree of success has been demonstrated in various studies and forms evidence for one aspect of research on empathic behavior. For example, Fleishman and Salter[1] measured empathy in terms of a supervisor's ability to guess how subordinates would fill out a self-description questionnaire. Sydiaha[2] investigated personnel selection interviewers' predicted responses of applicants to two paper and pencil tests, after which comparisons were made between the interviewers' predictions and the responses of the applicants. These comparisons were designated, collectively, as empathy scores. Bender and Hastorf[3] administered a forty-two item scale of statements dealing with a person's attitudes and feelings to fifty subjects who then attempted to predict the responses of four associates who also responded to the same scale. Empathy was measured in terms of four deviation scores obtained from the data for the variables of similarity, projection, and what the authors called raw empathy and refined empathy.[4] In addition to research on individual empathy the concept of mass empathy was explored and evaluated by Norman and Leiding.[5] Mass empathy involved the ability of an individual to respond to questions as he thought most other people of his own age and sex would answer them.

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[1] E. A. Fleishman, and J. A. Salter, "Relation Between the Leader's Behavior and His Empathy Toward Subordinates," Journal of Industrial Psychology, I (September, 1963), pp. 79-80.

[2] Daniel Sydiaha, "Interviewer Consistency in the Use of Empathic Models in Personnel Selection," Journal of Applied Psychology, XLVI (October, 1962), p. 345.

[3] I. E. Bender and A. H. Hastorf, "On Measuring Generalized Empathic Ability," Journal of Abnormal Social Psychology, XLVIII (September, 1953), p. 505.

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[4] Bender and Hastorf, Journal of Abnormal Social Psychology, XLVIII, p. 504. Raw empathy is defined as the deviations between the subject's predictions and the responses of his associates. Refined empathy is defined as the difference between raw empathy and projection (the total item-by-item deviation of a forecaster's own responses from his predictions for an associate).

[5] Ralph D. Norman and Waldemar C. Leiding, "The Relationship Between Measures of Individual and Mass Empathy," Journal of Consulting Psychology, XX (February, 1956), p. 80.

The studies mentioned above appear to parallel the approach used by Dymond.[6] She designed a method for measuring empathy by having an individual "A" rate himself according to certain criteria, the same which he later used to rate some other individual "B". The same ratings were obtained from "B", thus providing a basis for determining the accuracy of perceptions of both "A" and "B" of each other. This type of research utilizes the concepts and principles of role theory which emphasize the interpersonal interaction situation rather than the intrapersonal dynamics of an individual's behavior. Her definition of empathy:

> "... the transposing of oneself into the thinking, feeling and acting of another and so structuring the world as he does ...."[7]

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[6] Rosalind F. Dymond, "A Scale for the Measurement of Empathic Ability," Journal of Consulting Psychology, XIII (April, 1949), pp. 127-133.

[7] Dymond, Journal of Consulting Psychology, XIII, p. 127.

seems to recognize the process of role assumption on the part of the one who "transposes himself into the thinking, feeling and acting of another". As such, one might assume that the processes of introjection and projection are occurring on the part of the one who "transposes himself". However, her research[8, 9, 10,] as well as others cited in this section, is based upon verbal reports of subjects participating and appears inconclusive. The present investigation attempted to identify degrees of affect, measurable physiologically, which appear to be expressed as correlates of verbal expressions of the role assumption process as Dymond developed it. Operationally, the studies cited in this section attempted to measure empathy on the basis of

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[8] Leonard S. Cottrell and Rosalind F. Dymond, "The Empathic Responses a Neglected Field of Research," Psychiatry, XII (November, 1949), p. 355-359.

[9] Rosalind F. Dymond, "Personality and Empathy," Journal of Consulting Psychology, XIV (October, 1950), p. 349.

[10] Rosalind F. Dymond, Anne S. Hughes, and Virginia L. Raabs, "Measurable Changes in Empathy," Journal of Consulting Psychology, XVI (June, 1952), p. 206.

prediction of another's responses. In this study the cognitive measure of empathy derived from use of the *Squires Test* supports the role theory concept only to the extent that the individual incorporates the acts of others and internalizes them to form a composite of self-other patterns. These patterns provide him with a series of expectation-response patterns[11] which he may reflect at various affective levels.

Some research has attempted to isolate or at least account for the psychological mechanisms of projection and identification as they are revealed in the empathic process. Hastorf and Bender's study[12] involved fifty undergraduates at Dartmouth who each took the Allport-Vernon Study of Values Test. Each was then asked to choose another undergraduate whom he knew well and to predict the responses of this associate on the same test. Their findings point up the fact that part of the successful prediction of another's responses may be due to projection rather than empathy, as they state:

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[11] Rosalind F. Dymond, "A Preliminary Investigation of the Relationship of Insight and Empathy," *Journal of Consulting Psychology*, XII (July, August, 1948), p. 228. (In speaking of the individual's experiences in the interaction situation she states that one's personality is an aggregate of self-other patterns which have been internalized from his previous interactions with others. These provide him with a series of expectation-response patterns which he brings to new and ambiguous situations.

[12] A. H. Hastorf and I. E. Bender, "A Caution Respecting the Measurement of Empat[illegible]c Ability," *Journal of Abnormal Social Psycholog*[illegible] XLVII (April, 1952), pp. 574-576.

> ... Perhaps we are not yet ready for making theoretical distinctions, but contemporary theory certainly assumes them to be different processes. Projection is more autistic and personal than empathy in that the projector attributes his own feelings to his associates. Empathic ability seems more objective, more cognitive and more truly perceptive of the psychological structure of the other person. It seems to be a combination of sensory, imaginative and intellective processes. Imitative factors, particularly of a kinesthetic nature, may well aid the process ....[13]

Norman and Ainsworth[14] attempted, by means of a personality questionnaire, to measure the relationship between projection, reality, empathy, and adjustment, each operationally defined. Their results tended to support the hypothesis that empathy and reality are positively related to each other and projection are negatively related to them. Also supported was the hypothesis that reality and empathy correlate more closely with adjustment than with projection.

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[13] Hastorf and Bender, Journal of Abnormal and Social Psychology, XLVII, p. 575.

[14] Ralph D. Norman and P. Ainsworth, "The Relationships Among Projection, Empathy, Reality, and Adjustment, Operationally Defined," Journal of Consulting Psychology, XVIII (February, 1954), pp. 53-58.

Cowden,[15] on the other hand, submitted evidence to suggest that empathy and projection are not necessarily contradictory but tend to occur together. His study consisted of having twenty-nine married couples predict how each one's respective partner would respond on a personality inventory. The ability of one person to predict how one's spouse would answer on a personality inventory was referred to as a measure of empathy. The fact that males predicted with greater accuracy and projected more, suggested that empathy and projection are concurrent phenomena.

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[15] Richard C. Cowden, "Empathy or Projection?" Journal of Clinical Psychology, XI (April, 1955), p. 190.

The mechanism of identification as it relates to the empathic process has been investigated by Stotland and Dunn[16] and by Stotland and Walsh.[17] The findings of their studies tend to support the assumption that an individual can perceive some attribute in common between himself and a model and when he does, he can also perceive himself as having other attributes of the model. These processes of perception are what they defined as identification. They found that:

> ... identification occurs even when the attribute originally perceived in common between the individual and the model has been arbitrarily imposed on both of them so that there is no 'logical" reason for the individual's perceiving himself as having another attribute similar to the model's. In the series of studies it is not assumed that the person identifies with the model because of the latter's exemplary qualities. Identification is

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[16] Ezra Stotland and Robert E. Dunn, "Empathy, Self-Esteem, and Birth Order," Journal of Abnormal Social Psychology, LXVI (January-June, 1963), p. 532-540.

[17] Ezra Stotland and James A. Walsh, "Birth Order and An Experimental Study of Empathy," Journal of Abnormal Social Psychology, LXVI (January-June, 1963), pp. 610-614.

> assumed to occur on the basis of similarity alone ....[18]

In a study by Lockwood and Guerney[19] identification and empathy were investigated in relation to assumed similarity of parents to their children. It was demonstrated that the more a parent assumed similarity to his child the greater the identification occurred between them.

Although the research cited above dealing with the mechanisms of projection and identification appear to provide no consistent agreement in their findings, the studies do show how the concept of empathy can be operationalized. Perhaps most significant for the present study is the attempt that has been made to emphasize operationally segments of the empathic process such as phenomena of introjection, identification, or projection. That is to say, the perception of similarity between self and others as mentioned by Stotland _et al_[20, 21] indicates that an individual appears to incorporate within himself certain aspects of his experiences by a special role taking process. However, this might not occur when projection takes place in that attributing one's own qualities to another may not necessarily mean that one is to incorporate another's qualities. What is important is that possibly all three mechanisms - projection, identification and/or introjection-compose the empathic process. The present investigation attempted to allow the mechanism of introjection to occur predominantly so that changes in heart rate, finger blood volume, skin conductance, and respiration rate could be measured as possible physiological correlates of feelings resultant from this mechanism. The affective level experienced as a result of, or as

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[18] Stotland and Dunn, Journal of Abnormal and Social Psychology, LXVI, p. 532.

[19] Doris H. Lockwood and Bernard Guerney, Jr., "Identification and Empathy in Relation to Self-dissatisfaction and Adjustment," Journal of Abnormal and Social Psychology, LXV (November, July-December, 1962), pp. 343-347.

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[20] Stotland and Dunn, _Journal of Abnormal and Social Psychology_, LXVI, p. 532.

[21] Stotland and Walsh, _Journal of Abnormal and Social Psychology_, LXVI, pp. 610-614.

part of the mechanism of introjection is to have manifested itself in these changes. It is in this sense that this study is to be distinguished from the previously cited research dealing with the ability to make successful interpersonal predictions. As previously expressed in the definition of terms on Page 21, empathy has been defined as an affective and cognitive process of perceptualizing the experience of another. Operationally, it was measured in terms of an affective tonal component and a perceptual cognitive component. It is the mechanism of introjection that was considered most significant, although as Katz states:

> ... (Identification and introjection) These are two sides of the same process. When we identify, we project our being into others; when we incorporate, we introject the other person into ourselves. Both phases are ways in which we come to sense the reality of the experiences of others .... If we press for a distinction it might be this: when we identify, we experience what the other person feels; when we incorporate or take it in, we feel his experience as if it were our own ....[22]

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[22] Robert L. Katz, Empathy: Its Nature and Uses, (New York: Glencoe Free Press, 1963), p. 43.

Research in Affective
Dimensions of Behavior

Some clarification as to the nature of the affective domain is in order before reviewing some of the research related to it. To date the concept of affect[23] has been explained from two frames of reference, one being phenomenological and the other physiological.[24] The former takes the position that emotional experience can best be analyzed by subjective interpretations made by the individual who experiences affect. The latter considers affect to be best understood by means of objective measurement of physiological variables and as such, degrees of observed activation or arousal[25] are of primary concern. There are, however, problems connected with the measurement of affective states regardless of the frame of reference considered. As Lazarus states:

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[23] Drever, p. 10. (He defines affect in modern usage as any kind of feeling or emotion attached to ideas or idea-complexes.)

[24] Silvan S. Tomkins and Carroll E. Izard, Affect Cognition, and Personality (New York: Springer Publishing Co., Inc., 1965), pp. 2-22.

[25] Elizabeth Duffy, "The Psychological Significance of the Concept of 'Arousal' or 'Activation'",Psychological Review, LXIV (September, 1957), p. 265.

> ... there appears to be some rough agreement about what the different affects are like, subjectively and behaviorally. They are assumed to be different from each other even though they appear to overlap and coexist .... In any case, whether from behavioral, physiological, or self-report data, reference to emotional states is always an inference ....[26]

The affective dimension of empathy assessed in this study is assumed to have emanated from the subject's perceptual experiences of audio-visual picture sets as provided in the Squires Test.[27] The audio portion consisted of tape recorded dramatic excerpts from television plays and the visual portion from sets of video pictures of these same plays. There are numerous studies which have utilized visual stimuli for measuring degrees of affect.

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[26] Richard Lazarus, Psychological Stress and the Coping Process (New York: McGraw-Hill, 1966), p. 321.

[27] Samuel I. Squires, "The Construction of a Test Designed to Measure Aesthetic Perception of Televised Drama," Unpublished Ed.D. dissertation, Boston University, 1956), in Dissertation Abstracts, XVIII (January-May, 1957), p. 307.

Fisher,[28] for example, had college students orally describe a series of eight rubber masks depicting human faces for the purpose of testing the hypothesis that the more an individual is characterized by sad affect the more inclined he is to be inconsistent in his perception of up-down dimensions. Others have asked subjects to rate pictures or photographs in terms of various kinds of affects such as, Tomkins and McCarter[29] who presented facial photographs simulating such affects as interest, enjoyment, surprise, distress, fear, shame, contempt, and anger; Carlson[30] who assessed the expression of beliefs and attitudes as revealed in photographs; Izard and Nunnally[31] who developed the First Impression Rating Scale for measuring perceptual affective responses; and Ekman[32] who demonstrated that head and body nonverbal cues provide varied affective information. There are some studies which measured affect on a scaled continuum relative to degrees of pleasantness and unpleasantness. Reitz,[33] for example, explored the influence on college students of pictures and nonsense syllables scaled to variations of affect. The results were compared to the responses of these subjects' scores on a personality scale which measured shallow affect. Findings supported the interpretation that pictures with affective connotations do not exert as much influence in modifying behavior of individuals with a lower potential for affective arousal than others possessing a higher potential.[34] Vitz,[35] found evidence to support the hypothesis that humans have a preferred amount of stimulus variation in their perceptual environment, that is, to say subjects will rate tone sequences as to increasing or decreasing degrees of pleasantness, dependent upon the complexity of elements involved in a tone sequence. These studies cited indicate that responses of subjects in the present investigation would have been expected to vary in accordance with each one's previous perceptual learning and motivational variables. On the other hand, a study by

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[28] Seymour Fisher, "Depressive Affect and Perception of Up-Down," Journal of Psychiatric Research, II (January, 1964), pp. 25-30.

[29] Silvan S. Tomkins and Robert McCarter, "What and Where are the Primary Affects? Some Evidence for a Theory," Perceptual and Motor Skills, XVIII (February, 1964), p. 122.

[30] Verlin Dennis Carlson, "The Resolution of Photographic and Labelling Factors in Affective Impressions," (unpublished Ph.D. dissertation, Vanderbilt University, 1962), in Dissertation Abstracts, XXIII (March, 1963), pp. 3524-3525.

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[31] Carroll B. Izard and Jum C. Nunnally, "Evaluative Responses to Affectively Positive and Negative Facial Photographs: Factor Structure and Construct Validity," Educational and Psychological Measurement, XXV (Winter, 1965), p. 1069.

[32] Paul Ekman, "Differential Communication of Affect By Head and Body Cues," Journal of Personality and Social Psychology, II (July, 1965), p. 726.

[33] Willard E. Reitz and Douglas N. Jackson, "Affect and Stereoscopic Resolution," Journal of Abnormal and Social Psychology, LXIX (March, 1964), pp. 212-215.

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[34] Reitz, LXIX, p. 215.

[35] Paul C. Vitz, "Affect as a Function of Stimulus Variation," Journal of Experimental Psychology, LXXI (1966), pp. 74-78.

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Strassburger[36] in which subjects were asked to rate on a pleasant-unpleasant scale lists of nonsense syllables each read aloud, produced results which tended to support the assumption that some sort of adaptation process in the determination of affect takes place in individuals presented with affect-laden stimuli.

Other qualitative attributes of affective states have been investigated by use of a variety of verbal measures based on word lists. Gershaw[37] for example, attempted to test order of recall of names of members in any group, as it relates to the intensity of affectional ties toward members of that group, by asking a group of college girls to list as many names of girls in their dormitory wing as they could and then list, in order, the five girls they liked least and the five they liked most. Solarz[38] asked subjects individually to arrange word cards according to feeling response toward each word. Zuckerman *et al*[39] developed an adjective check list designed to measure day-to-day changes in three affects: anxiety, depression, and hostility. Russell,[40] attempted to measure levels of affect in terms of words judged as good or bad by two groups each defined as possessing different degrees of anxiety. For the most part, the studies cited in this section concerning affect are consistent with

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[36] Fred Strassburger and Michael Wertheimer, "The Discrepancy Hypothesis of Affect and Association Value of Nonsense Syllables," Psychological Reports, V (August, 1959), p. 528.

[37] D. Gershaw, "The Relation of Recall to Various Measures of Affect," Journal of Social Psychology, LXVI (March, 1965), p. 162.

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[38] A. K. Solarz, "Reliability of Affective Arrangement of Word Cards on a Plane," *Perceptual Motor Skills*, XVI (April, 1963), p. 111-118.

[39] Marvin Zuckerman, Bernard Lubin, Lawrence Vogel, and Elizabeth Valerius, "Measurement of Experimentally Induced Affects," *Journal of Consulting Psychology*, XXVIII (June, 1964), pp. 418-425.

[40] Deborah M. Russell, "Immediate Recall as a Function of Word Affectivity and Manifest Anxiety," (unpublished Ph.D. dissertation, Boston University, 1963) in *Dissertation Abstracts*, XXIV (January, 1963), pp. 2579-2580.

Schlosberg's[41] theoretical construct to the extent that they attempt to measure affects _qualitatively_. His theory explains affective states in terms of a pleasantness dimension, a dimension of attending to or rejecting stimulation, and an intensitive dimension extending from sleep to varied levels of arousal. However, the audio-visual perceptual sets utilized in the present study, as provided in the _Squires Test_, are presumed to have allowed the affective tonal component of empathy to have been elicited as a non-verbal intensitive dimension.

Research in Counseling
Relative to the Empathic Process

The attempt to furnish consistent empirical evidence of the empathic process during a counseling interview has not yet been successful. This may be due to the difficulty of formulating a theoretical construct from which an operational definition of empathy may be derived and reliably tested. To some, such as Kohut, the phenomenon of empathy is an inner experience. As he states:

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[41] Harold Schlosberg, "Three Dimensions of Emotion," _Psychological Review_, LXI (March, 1954), pp. 81-88.

> ... the inner world (of an individual's experiences) cannot be observed with the aid of our sensory organs. Our thoughts, wishes, feelings, and fantasies cannot be seen, smelled, heard or touched. They have no existence in physical space, and yet they are real, and we can observe them as they occur in time, through introspection in ourselves, and through empathy (i.e. vicarious introspection) in others ....[42]

However, the role of empathy has had special significance for those in the counseling profession. Lifton[43] developed his Music Reaction Test because he realized that there have been some criteria developed for the selection of counselor trainees in terms of academic standards but that little success has been attained in identifying them in terms of possessing high degrees of particular personality variables such as empathy. Katz[44] investigated the counselor's predictive and behavioral empathy in short-term counseling and concluded that subjects demonstrated no significant relationship between the two. A counselor's empathy was measured by his predictive accuracy of what a client reported on a self-concept Q-sort. The counselor's behavioral empathy was derived by judges' ratings of his behavior on a rating scale of empathic behavior. Lesser's[45] study attempted to explore the relationship between counselor understanding of his client and counseling progress and found that counselor empathic understanding, as measured in terms of relationships among such variables as various similarities of perceptions were unrelated to counseling progress. Both of these above studies seem to suggest that other factors functioning within the counselor may be more important than the empathic process. As Lesser stated:

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[42] Heinz Kohut, "Introspection, Empathy, and Psychoanalysis," Journal of the American Psychoanalytic Association, VII (September, 1959), p. 284.

[43] Walter Lifton, "The Role of Empathy and Aesthetic Sensitivity in Counseling," Journal of Counseling Psychology, V (Fall, 1958), p. 267.

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[44] Bernard Katz, "Predictive and Behavioral Empathy and Client Change in Short-Term Counseling" (unpublished Ph.D. dissertation, New York University, 1962), in Dissertation Abstracts, XXIII (October-December, 1962), p. 2206.

[45] William M. Lesser, "Relationship Between Counseling Progress and Empathic Understanding," Journal of Counseling Psychology, VIII (Winter, 1961), pp. 330-336.

> ... when the counselor correctly _perceives_ the degree of similarity between himself and his client he apparently perceives more correctly what the client is saying and feeling, than when he merely _feels_ similar to the client or further over-estimates their similarity ... misperception of similarity seems to both client and counselor as a lack of empathic understanding ....[46]

Both Lesser's and Katz's studies appear to rely heavily upon a cognitive process existing between client and counselor. Other studies lend support to the importance of empathy as a necessary attribute of counselor personality and have attempted to measure it in the context of interpersonal settings similar to those of Lesser and Katz. Dittes[47] demonstrated how delicate the relationship is between client and therapist by correlating judged degrees of warmth or acceptance on the part of the latter to client anxiety levels measured as changes in galvanic skin responses. Results indicated that slight changes in the therapist's attitudes toward lesser acceptance caused a significant increase in the number of galvanic skin responses. Daane,[48] interested in obtaining a quantitative measure of empathy in counselors, studied several personality traits believed to be related to empathic ability by comparing the latter as identified on the MMPI and other personality inventories with empathy scores derived by counselor prediction of client responses. Evidence seemed to support his major hypothesis that counselors with a high degree of empathic ability, defined as the ability of the counselor to put himself in the position of his client and predict his self-feelings and attitudes, possessed significantly distinct measurable characteristics from those counselors with lesser empathic ability. Sternberg[49] studied the growth characteristics of empathy among small groups of university students as personality orientations and frequency of interpersonal contact were manipulated. The hypothesis that growth of empathy will tend to be some function of interpersonal contact and that such growth would vary positively with time was supported consistently at significant levels.

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[46] Lesser, VIII, p. 334.

[47] J. E. Dittes, "Galvanic Skin Responses as a Measure of Patient's Reaction to Therapist's Permissiveness," _Journal of Abnormal Social Psychology_, LV, (1957), p. 303.

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[48] Calvin J. Daane, "A Study of Empathic Ability and Related Variables Among Trained and Practicing Counselors," (unpublished Ed.D. dissertation, Indiana University, 1955), in Dissertation Abstracts, XV (October-December, 1955), p. 2096.

Some research on empathy has been done under simulated counseling conditions. For example, Astin[50] attempted to develop a situational test of empathy by asking counseling majors with varied experience to listen to a series of recorded statements and respond to them as if they were being said during a counseling session. Correlations of ranked responses with a prediction test of empathy indicated that the situational approach might be useful in assessing empathy but the appropriateness of the prediction approach was questionable. O'Hern and Arbuckle[51] measured the degree of sensitivity possessed by potential counselors using a scaled tape recorded set of counseling situations. Sensitivity was defined as:

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[49] David S. Sternberg, "The Growth of Empathy: An Investigation of the Relationship Between Sensitivity to the Self-Perception of Others as Interpersonal Contact and Certain Selected Personality Variables," (unpublished Ph.D. dissertation, New York University, 1962), in Dissertation Abstracts, XXIII (July-September, 1962), p. 1082.

[50] Helen S. Astin, "A Comparative Study of the Situational and Predictive Approaches to the Measurement of Empathy," (unpublished dissertation, in Dissertation Abstracts, XVIII (March-April, 1958), pp. 1091-1092.

> ... the capacity to perceive the awareness of what is happening in the treatment process from verbal statements and verbal behavior of the client. The counselor understands quickly and accurately the emotional basis, the moods, and the conflicts that underlie the client problem ....[52]

Results indicated that student counselors identified as most sensitive were significantly younger, had attained a lower educational degree, and had been employed fewer years than those considered least sensitive.

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[51] Jane S. O'Hern and Dugald S. Arbuckle, "Sensitivity: A Measurable Concept?" The Personnel and Guidance Journal, XLII (January, 1964), p. 572.

[52] O'Hern and Arbuckle, The Personnel and Guidance Journal, XLII, p. 573.

The present study also attempted to measure a cognitive aspect of empathy but consideration was given to the importance of affect, the so-called tonal component[53] of empathy as a significant attribute of a counselor's personality. It is recognized, however, that stimulus conditions for measuring the cognitive and affective components of empathy were not those of a counseling situation. Nevertheless, use of affect-laden dramatic excerpts from television plays was considered appropriate for attempting to determine differences between counselor behavior and non-counselor behavior in terms of these components.

Summary

Many studies dealing with the assessment of empathic behavior have been done in terms of how well one person can predict the responses of another. Each has predicated its measurement upon certain psychological mechanisms of behavior and each has utilized a variety of verbal report techniques. These report techniques do not appear to be getting at the more central affective quality of empathy and no one study appears to have accounted for any one psychological mechanism as being the most important basis for empathic reactions.

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[53] Arnold Buchheimer, "Development of Ideas About Empathy," Journal of Counseling Psychology, X (May, 1963), pp. 66-67.

The research reviewed in this chapter seems to indicate that there is no conclusive evidence to support the assumption that empathy is totally cognitive or totally affective. Therefore, for the sake of definitive research, this study has attempted to assess both aspects in terms of the two operational components tone and perception.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

As described in Chapter I in the section under analysis of the problem, this study involved a determination of the differences between counselors and non-counselors in terms of one dimension of behavior, empathy. The affective (tonal) component of empathy was investigated by simultaneously assessing physiological changes in skin conductance, respiration rate, heart rate, and finger blood volume along with the cognitive (perceptual) component of empathy. The cognitive (perceptual component of empathy was assessed in terms of oral verbal responses. In order to elicit both the affective and cognitive responses selected items of the Squires Empathy Test were used for the stimulus setting. The Beckman Type R Dynograph was employed for monitoring and recording the four physiological responses.

Method of Testing Hypotheses

As explained in Chapter I two hypotheses were tested in light of the following postulates:

1. Counselors manifest a greater degree of empathy than counselor trainees and graduate science majors.
2. Counselors, counselor trainees, and graduate science majors respond similarly to situations which require cognitive reactions.

The following hypothesis was concerned with the affective or tonal component of empathy:

1. There are significant differences among the affective responses of counselors, counselor trainees and graduate science majors.

This hypothesis was tested by the simultaneous assessment of physiological changes in skin conductance (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV) as each subject reacted to dramatic portions of televised plays. These portions were presented in the form of tape recorded excerpts followed by appropriate picture slides. These audio-visual stimuli consisted of selected items taken from the Squires Empathy Test.[1]

The following hypothesis was concerned with the cognitive or perceptual component of empathy:

2. There are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors.

This hypothesis was tested by obtaining verbal measures of the subject's interpretation of the dramatic picture slides presented to him following each tape-recorded excerpt. Each subject's oral response constituted a cognitive measure. The visual stimuli consisted of selected picture sets taken from the Squires Empathy Test.[2]

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[1] Samuel I. Squires, "The Construction of a Test Designed to Measure Aesthetic Perception of Televised Drama," (unpublished Ed.D. dissertation, Boston University, 1956), in Dissertation Abstracts, XVII (January-May, 1957), p. 307.

[2] Squires, Dissertation Abstracts, XVII, p. 307.

Subjects

The subjects in this study consisted of the following three groups:

1. The first group consisted of thirty senior high school counselors each having a counseling assignment of four hundred students and no time assigned to classroom teaching. These specifications complied with both the Dade County[3] and State of Florida accreditation standards[4] for guidance services.
2. The second group consisted of thirty graduate students who were majoring in physical and/or biological sciences in preparation for a career in science and not teaching or other social service fields.
3. The third group consisted of thirty counselor

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[3] Dade County, Florida, Public Schools, Curriculum Bulletin No. 19: Index to Guidance Services, p. 213-214.

[4] State Department of Education, Accreditation Standards For Florida Schools, Tallahassee, IV. Senior High Guide Grades 10-12, Section 5.922, p. 235.

trainees who were currently involved in counselor preparation below the practicum level. This means that they were pursuing courses of study relevant to theoretical foundations of guidance and counseling and other academic areas, but they had not had any experience in actual counseling situations professionally or under the supervision of a counselor educator.

The reasons for the selection of the above subjects were as follows:

1. Counselors in the field were presumed to have developed the empathic skills which are considered an outgrowth of counselor training and counseling experience.
2. Graduate science majors were considered to be individuals who had a lesser degree of orientation to the operational variable, empathic behavior, postulated in this study to be significantly more apparent among counselors.
3. Counselor trainees were considered as counselors

to the extent that they were individuals who because of their expressed intentions of becoming counselors and their actual involvement in a counselor education program reflected sensitivity to empathic skills akin to that of counselors.

4. There is no correct number of subjects considered necessary for studies of this kind which deal with physiological measures of changes in skin conductance (GSR's), heart rate (HR), finger blood volume (FBV), and respiration rate (RR). As is the case with other studies[5,6,7] where similar physiological

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[5] Arnold M. Mordkoff, "The Relationship Between Psychological and Physiological Response to Stress," Psychosomatic Medicine, XXVI (March-April, 1964), p. 135.

[6] Richard S. Lazarus, et al, "The Principle of Short-circuiting of Threat: Further Evidence," Journal of Personality, XXXIII (December, 1965, p. 622.

[7] Richard S. Lazarus, Joseph C. Speisman, and Arnold M. Mordkoff, "The Relationship Between Autonomic Indicators of Psychological Stress: Heart Rate and Skin Conductance," Psychosomatic Medicine, XXV (January-February, 1963), p. 19.

measures have been assessed, the number of thirty selected in this study seemed convenient as well as practical for providing adequate statistical treatment of the data.

Instruments

There are numerous instruments often employed in the study of bodily changes such as the galvanometer, plethysmograph, sphygmograph, pneumograph, ergograph, and ataximeter.[8] For purposes of this study the Beckman Type R Dynograph Direct Writing Recorder[9] was used. There are two types of "back action"[10] to be avoided or minimized in this kind of research. The first is the general type which occurs when a subject is disturbed by the formidable appearance of the equipment used by the examiner. In this study orientation of the subjects by the examiner and the concealment of the Beckman Type R Dynograph, the major equipment used, provided for a minimum of this type of "back action". The second, called "local back action" occurs when using absurd apparatus which would impede measurable responses. The Beckman Type R Dynograph permitted simultaneous and direct recording of four physiological measures: changes in heart rate (HR), skin conductance (GSR), finger blood volume (FBV), and respiration rate (RR), and thus attempt was made to minimize this form of "back action".

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[8] T. G. Andrews, (ed.), Methods of Psychology, (New York: John Wiley and Sons, 1948), pp. 361-393.

[9] This instrument was manufactured by Beckman Instruments, Inc., Offner Division, 3900 River Road, Schiller Park, Illinois.

[10] The term "back action" refers to any actions or conditions in experimentation which will impede pure responses. (Andrews, pp. 400-401.)

Instruments for the assessment of empathy have been verbal in nature and vary in what they appear to be measuring. For example, the Empathy Test developed by Willard A. Kerr and Boris J. Speroff[11] attempts to measure the degree to which an individual can put himself into the position of another person. Specifically, the respondent is asked to rank music types, magazines, and annoying experiences as typical office workers, readers, or older persons would rank them. This test was inadequate for this study in that the normative data are obsolete and it appeared to be more a measure of general information and prediction of opinions than of interpersonal empathy.[12] Dymond's[13] scale of empathy, mentioned earlier on Page 30, is an attempt to obtain ratings of another in terms of six traits. However, this instrument is also difficult to use because it requires the objects of the subject's ratings to rate themselves.[14] In this study the cognitive component of empathy measured involved no prediction of another's responses but rather, as mentioned earlier on Page 15, an introjection of another's experience from his frame of reference.[15] The Literature Empathy Test[16] is a paper and pencil type test in which the subject is required to read selections from fiction portraying markedly different personalities. While reading each he tries to get a "feel" for the individual portrayed and then completes sentence stems with the alternative he thinks the individual in the selection would have chosen were he taking the test. Here again is a prediction type of approach in measuring the cognitive component of empathy. Lifton's Music Reaction Test[17] was developed as a means of measuring aesthetic sensitivity as a concept of empathy. However, in attempting to do so he, too, continues to utilize interpersonal ratings as a criterion[18] by asking subjects to rank peers on sensitivity to the feelings of others.

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[11] Oscar K. Buros (ed.) The Sixth Mental Measurements Yearbook (Highland Park, New Jersey: Gryphon Press, 1965), p. 91.

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[12] Buros, p. 92.

[13] Rosalind F. Dymond, "A Scale for the Measurement of Empathic Ability," Journal of Consulting Psychology, XIII (April, 1949), p. 127.

[14] C. H. Patterson, "A Note on the Construct Validity of the Concept of Empathy," The Personnel and Guidance Journal, XL (May, 1962), pp. 803-806.

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[15] Arnold Buchheimer, "Development of Ideas About Empathy," Journal of Counseling Psychology, X (May, 1963), p. 67.

[16] Stanley C. Mahoney, "The Literature Empathy Test: Development of a Procedure for Differentiating Between 'Good Empathizers' and 'Poor Empathizers' (unpublished Ph.D. dissertation, University of Oklahoma, 1960), in Dissertation Abstracts, XXI (March, 1960), p. 674.

[17] Walter Lifton, "The Role of Empathy and Aesthetic Sensitivity in Counseling, Journal of Counseling Psychology, V (Fall, 1958), p. 267.

For purposes of this study, it was decided to administer the Squires Empathy Test, also called A Test of Drama Appreciation.[19] This test was selected because it provided a means for assessing the intellective component of empathy and, at the same time, a stimulus setting from which correlated affective responses could be obtained. It also allowed the respondent to utilize the psychological process of introjection as he reacted to the test items presented. As explained earlier, on Page 14, introjection is considered an important part of the role assumption construct fundamental for understanding the concept of empathy proposed in this study.

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[18] Buchheimer, X, p. 64.

[19] Squires, Dissertation Abstracts, XVII, p. 307.

The Squires Empathy Test[20] is composed of seventy-eight multiple choice items involving the matching of photographs and dramatic dialogues. The photographs were selected from television plays with the simultaneous recording of the dramatic dialogue for each photograph. In its original form the test was constructed in two parts each composed of a booklet containing a set of six photographs to a page. Accompanying each booket was the tape recording of a variety of appropriate dramatic dialogues. The respondent was asked to look at a set of pictures while listening to a recording taken from the actual televised play pertaining to that set. At the end of each recording, when the dialogue stopped, the testee was to select the picture he felt to be most appropriate to what he had just heard. He had approximately thirty seconds to make a selection and mark his answer sheet after which time a second dialogue was heard. In Part I, consisting of thirty-six items, the testee was to match two out of six pictures with each of two dramatic dialogues. As Squires explains:

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[20] Squires, Dissertation Abstracts, XVII, p. 307.

> ... the picture choices suggested both desirable and undesirable responses to the dramatic stimuli presented and were photographed from the same two scenes. Thus the multiple choice situation called for a selection of one picture from six and then one picture from five .... The directions for part one requested the testee to select the appropriate picture choice "1", "2", "3", "4", "5", or "6" at the time the dialogue was stopped. The directions placed emphasis upon the testee's feeling regarding the matching of the dialogue with the actor's exact 'mouthing' of words. Emphasis was also placed upon the testee's selecting the appropriate picture at the end of the dialogue because moods change within one scene ....[21]

In Part II, consisting of forty-two items, the testee was required to match all six photographs per set with six dramatic dialogues. The pictures and dialogues of each set in part two were to be selected and arranged in proper sequence.

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[21] Samuel I. Squires, "The Construction and Evaluation of a Test Designed to Measure Aesthetic Perception of Televised Drama," (Unpublished Ed.D. dissertation, Boston University, 1956), pp. 68-71.

According to Squires, the measures of reliability for the test were as follows: the split-half method coefficient of reliability for part one was .86; for part two it was .75 and for the total test it was .89. The content validity of the test was claimed by reason of the development of test items from actual televised drama. By means of item analysis, fifty-five out of seventy-eight items in the test were found to discriminate at the five per cent level of confidence.

For purposes of this study eleven items were used. Each item was defined as a set of six pictures and a dramatic dialogue to be matched to one of the six pictures. In terms of actual procedures it was necessary to use those items which would be capable of stimulating enough affect to cause the subject to give responses adequately assessable as changes in all of the physiological variables under consideration, namely, skin conductance (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV). The techniques involved for the selection and revision of these items will be described in the appropriate section under Procedures.

Procedures

Selecting the Subjects:

As described under the section Subjects, three thirty-member criterion groups were used: counselors, counselor trainees, and graduate science majors. Attempt was made to select subjects in such a way as to obtain a sample truly representative of the population of each criterion group. The credentials for each group were as follows:

1. Counselors were full-time employees qualified according to Florida certification standards[22] and listed in the Dade County Guidance Personnel Directory.[23]

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[22] Florida State Department of Education, Florida Requirements for Teacher Certification, Adopted by the State Board of Education as of March 10, 1964, (Tallahassee: Section 18 Guidance, grades 1-12), p. 60.

[23] Dade County Public Schools Guidance Personnel Directory, 1966-1967, Dade County, Florida, pp. 8-12.

2. Counselor trainees were graduate students preparing to become counselors. They were taking course work in guidance and counseling but were lacking any experience in actual counseling situations professionally or under the supervision of a counselor educator. The above criteria were substantiated by obtaining a list of potential participants and checking with the School of Education at the University of Miami to see that they were duly enrolled in a counselor training program and were completing courses prerequisite to practicum experience. These persons were also interviewed to see that they had no professional experience as counselors.
3. The graduate science majors were students training for a physical and/or biological science career in research or in a non-interpersonal setting and not preparing for teaching or other social service careers. An attempt was made to substantiate these

criteria by obtaining a list of potential participants compiled from students enrolled as full-time graduate science majors in the Institute of Marine Science, Institute of Atmospheric Science, Department of Chemistry, Department of Physics, Department of Engineering, and the Department of Biology, all at the University of Miami. These potential participants likewise were interviewed to see that their career aspirations met the criteria established for this group.

After lists were compiled for each group a random sample was obtained. This was accomplished by assigning numbers in sequence from 01 through n for each group respectively and next obtaining a random sample of thirty subjects from each group by use of a table of random numbers.[24] In the event that a subject sampled in a particular criterion group was unable to participate because of such conditions as illness or the inability to be contacted, the next random number was selected for that group until thirty subjects were randomly sampled for each group.

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[24] Allen L. Edwards, Statistical Methods for the Behavioral Sciences (New York: Holt, Rinehart and Winston, 1964), pp. 472-476.

Each subject was given an orientation talk as to the nature of his participation. He was informed that this study was to determine what an individual's feelings might be to a life situation(s) which would be presented to him in the form of pictures and word descriptions. Participation was on a voluntary basis.

Selecting the Test Items:

Six counselor educators agreed to rate the original test items as to the degree of emotion each felt a set of six pictures and the accompanying dialogues were capable of arousing in others. This judging was done as each professor listened independently to the tape recorded dialogues accompanying the appropriate picture sets. These professors included three men and three women each educated at undergraduate and graduate institutions. Also, each had a background of sensitivity training in areas of guidance and counseling. By virtue of their training counselor educators logically were expected to possess the kind of sensitivity needed for this rating task, that is, the capacity to select situational levels of perceived affect.

An attempt was made to develop a rating scale that would make it possible to communicate the same rating process to each rater.[25] In constructing the scale, anonymity of the raters was maintained by coding each judge's scale. Scale points were so designated as to minimize ambiguity of meaning for each specified degree of emotion judged. A degree of emotion was defined as the amount of feeling a dramatic situation is judged capable of arousing in others. Each degree was succinctly described as indicated on the sample scale in the Appendix.

Each professor was asked to make independent judgments as he sat and rated each picture set for Part I and Part II of the Squires Empathy Test. A picture set on the rating scale was designated as an item number and was defined as a combination of audio-visual stimulus situations. In Part I of the rating scale each item number or audio-visual stimulus situation corresponded to a combination of six pictures in the Squires Test booklet (Part I) and two tape recorded excerpts of dramatic dialogues. In Part II of the rating scale each item number or audio-visual stimulus situation corresponded to a combination of six pictures in the Squires Test booklet (Part II) and six tape recorded excerpts of dramatic dialogues.

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[25] Robert Travers, An Introduction to Educational Research (New York: MacMillan Company, 1964), pp. 223-224.

In order to insure a greater degree of accuracy for each judgment made, space was provided at the right of each scale item for the rater to make notations of his overall reaction to the picture set. After making this notation, he was better able to judge the most appropriate degree.

After rating all of the picture sets the judge was to rank all of the items on the scale as to which possessed the highest degree of feeling. However, after rating all the items for each part of the scale it was difficult for the judge to rank all items from 1-18 in Part I and all items from 1-7 in Part II because of his inability to remember all of the dialogues and pictures. Therefore, scale item ranks of judged degrees of felt emotion were taken for each of the eighteen picture sets in Part I of the rating scale and for each of the seven sets in Part II of the rating scale. The means of all judges' rankings for each item rated were computed. Tables 1 and 2 illustrate these rankings and the means for each scale item.

Each degree on the rating scale was given a rank as follows:

NONE (does not arouse any feelings) = 1
WEAK (does stimulate but very little) = 2
SLIGHT (does arouse significant feelings) = 3
STRONG (does arouse vigorous feelings) = 4
EXTREME (does excite powerful feelings) = 5

TABLE 1

SCALE ITEM RANKS OF DEGREES OF FELT EMOTIONS JUDGED BY SIX COUNSELOR EDUCATORS USING EIGHTEEN PICTURE SETS FROM PART I OF THE SQUIRES EMPATHY TEST

	Scale Item Numbers on the Rating Scale																	
Raters	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Scale Item Ranks of Judged Degrees of Felt Emotion																	
A_m	2	3	2	1	4	3	3	2	1	2	4	3	1	3	2	4	4	2
B_m	3	5	2	1	2	4	3	2	2	2	3	1	4	3	1	2	2	2
C_m	4	4	2	4	3	4	3	3	4	2	4	2	3	5	4	4	5	3
D_f	3	5	3	3	2	3	2	2	3	1	2	2	3	5	5	3	2	2
E_f	3	4	4	3	2	2	1	1	2	3	3	1	3	4	4	2	4	3
F_f	4	3	2	3	1	2	3	1	1	1	1	2	2	3	1	2	3	2
Mean For Each Scale Item Rank Across Raters	3.2	4.0	2.5	2.5	2.3	3.0	2.5	1.8	2.2	1.8	2.8	1.8	2.7	3.8	2.8	2.8	3.3	2.3

m = male judge
f = female judge
1 = lowest rank
5 = highest rank

TABLE 2

SCALE ITEM RANKS OF DEGREES OF FELT EMOTIONS JUDGED BY SIX COUNSELOR EDUCATORS USING SEVEN PICTURE SETS FROM PART TWO OF THE SQUIRES EMPATHY TEST

	SCALE ITEM NUMBERS ON THE RATING SCALE						
Raters	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SCALE ITEM RANKS OF JUDGED DEGREES OF FELT EMOTION						
A_m	3	5	5	5	4	4	4
B_m	2	3	4	3	3	4	4
C_m	3	4	5	5	5	5	4
D_f	2	4	2	3	4	3	3
E_f	3	5	3	4	5	4	4
F_f	2	4	2	5	4	3	4
Mean for Each Scale Item Rank Across Raters	2.5	4.2	3.5	4.2	4.2	3.8	3.8

m = male judge
f = female judge
1 = lowest rank
5 = highest rank

Along the vertical axis of each chart are listed the code letters for each judge with a subscript of "m" or "f" for male and female respectively. Along the horizontal axis are listed the scale item numbers for each picture set. Below each scale item number is its respective degree rating expressed as a rank from one through five, the latter signifying the highest degree of judged felt emotion.

The mean rank for each scale item across raters was computed and all items having a mean of 3.0 or more were designated as having a stimulus value capable of arousing significant feelings. Therefore, all other items with mean ranks of less than 3.0 were ruled out as being judged incapable of stimulating enough of a response to obtain indices of change in the four physiological variables under consideration, namely, changes in skin conductance (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV). The following eleven scale items as indicated in the tables on Pages 76 and 77 were selected for further rating:

Table 1 (Part I) scale items 1, 2, 6, 14, and 17

Table 2 (Part II) scale items 2, 3, 4, 5, 6, and 7

For purposes of this study it was necessary to establish an adequate prestimulus level from which various responses in terms of degrees of arousal or affect could be measured. The prestimulus level occurring during a relaxation or baseline period varies from subject to subject since it is a function of each individual's physiological homeostatic mechanisms. This functional concept is explained by Sternbach:

> ... What we are describing here is an aspect of homeostatic functioning which poses the problem for the measurement of responses. This problem (called the 'law of initial values') means that an autonomic nervous system response to stimulation is a function of the prestimulus level ... the higher the prestimulus level of functioning, the smaller the response to a function-increasing stimulus. And at more extreme levels there is more tendency for no response to stimulation, and even for 'paradoxical' responses - those which reverse the typical directions of responses ....[26]

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[26] Richard A. Sternbach, Principles of Psychophysiology (New York: Academic Press, 1966), p. 44.

From this concept it is understandable that a baseline period for each subject would be needed during which time a represenative prestimulus level might be established. The time limit of twelve to fifteen minutes was selected for a prestimulus level because of its wide use by Richard Lazarus and his associates.[27] In addition, consideration had to be given to the length of time for presentation of the stimulus situation. The Squires Empathy Test in its original form required approximately one hour and fifty minutes for completion. In this study, a subject was required to sit in a reclining chair without moving while sensors on one finger, the hands, arms, and head monitored his physiological responses. Under such a testing situation, use of the original form of the Squires Empathy Test or even the eleven picture sets rated as highly affect-laden, would have been too time consuming. As such, this length of time would eventually promote restlessness upon the part of the subject and he would move, thus causing inaccurate if not invalid measures of response patterns.

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[27] Richard S. Lazarus, et al, "The Principle of Short-circuiting of Threat: Further Evidence," Journal of Personality, XXXIII (December, 1965), p. 626.

Therefore, it was necessary to select fewer test items yet retain those most appropriate for eliciting adequate response patterns. A second group of judges was asked to rate the eleven picture sets already judged as affect-laden according to a first group as indicated on Page 72. The second group of raters was composed of three doctoral students, two men and one woman, whose major area of specialization was guidance and counseling. Each doctoral student was already trained and experienced as a counselor and, as in the case of the first group of judges, was logically expected to possess sensitivity needed for the task of selecting situational levels of perceived affect. Specifically, each member was asked to listen to individual tape recorded dramatic dialogues of the Squires Empathy Test as he looked at each appropriate page of six pictures in the Squires

Test booklet. Following this observation he was to select one dialogue in each of the eleven previously rated picture sets as being most affect-laden. The three raters listened together to the tape recorded dialogues but made their judgments independently. Then, by discussion they reached a consensus as to which dialogue was considered most affect-laden.

The eleven sets of pictures and eleven dialogues judged as the most affect-laden and used to form the stimulus content for this investigation are listed in Table 3.

Preparing to Use the Instruments:

After the eleven sets of six pictures and eleven dialogues were selected, it was decided that in order to minimize movement on the part of the subject and to provide a more convenient means for monitoring the four physiological variables under consideration, namely, changes in skin conductance (GSR's) heart rate (HR), respiration rate (RR), and finger blood volume (FBV), the original written

TABLE 3

FINAL ELEVEN PICTURE SETS AND DIALOGUES SELECTED FOR USE AS STIMULUS CONTENT IN THIS STUDY

Rater Group One Rating Scale Item Numbers	Original Item Numbers in the Squires Empathy Test Booklet	Rater Group Two Final Squires Test Dialogue Selected for This Study	Slide Picture Set Number
Part I			
1	1- 2	2	1
2	3- 4	3	2
6	11-12	11	3
14	27-28	28	4
17	33-34	33	5
Part II			
2	7-12	10	6
3	13-18	15	7
4	19-24	23	8
5	25-30	29	9
6	31-36	36	10
7	37-42	40	11

response method of the Squires Empathy Test would be converted to that of an oral response technique. Therefore, it was necessary to modify the original format of the Squires Empathy Test. The eleven sets of six pictures selected as stimulus content were removed from the original test booklet, converted to slides, and mounted in sequence in a slide projector carousel. Using a new recording tape the eleven dialogues selected as stimulus content were reproduced from the original tape recording. Metallic inserts were placed on the tape between each of the eleven dialogues. A narrated set of directions explaining the subject's task in the experimental setting was recorded at the beginning of the tape preceding the first dialogue. By means of a synchronizer connected between the tape recorder and the slide projector the metallic inserts served to trigger electronically the movement of the carousel. Therefore, as each dialogue was presented, the appropriate slide was projected on to a screen and removed automatically in readiness for the succeeding dialogue.

This technique of stimulus presentation eliminated the subjectivity which could have been introduced by the experimenter as he presented each slide manually following each dialogue; that is to say, his reaction time between dialogues would have varied. For purposes of this study, this synchronized technique provided a systematic and consistent method of stimulus content presentation from subject to subject. It also allowed the experimenter adequate time for monitoring and recording responses as they were elicited. In essence, therefore, each subject was responsible for replying orally while he looked at a slide set of six pictures focused on a screen in front of him after he listened to a dramatic dialogue appropriate to the slide. The final sequence of stimulus content consisted of a set of tape recorded directions followed by eleven dialogues and eleven slides. The technique of subject response will be elaborated upon further in this chapter under the section, Testing the Subjects.

The Beckman Type R Dynograph Recorder used was a commercially-manufactured piece of equipment fully transistorized to allow recording without warm up. It contained an adequate number of channels and couplers for converting and monitoring the input signals obtained from the four physiological functions assessed in this study, namely changes in skin conductance (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV). However, a pilot study was necessary for the following reasons:

1. The selection of adequate sensors had to be made as well as the establishment of their proper locations.
2. The development of an effective response setting was important.
3. The experimenter needed to gain facility in monitoring and recording responses.
4. A consistent time and sequence for each subject's participation had to be established.

Selecting and Placing of Sensors

Changes in skin conductance were found to be most clearly measured when Beckman biopotential electrodes were placed on the palmar surface of each hand rather than on the back of the hands or other parts of the body. The reason for this placement was that a greater amount of perspiration occurs in the palm of the hand than at other surface points on the body and it served as a convenient location. The secretion of perspiration appears to be positively related to increases in conductance even though the resistance of the skin is fairly high.[28] In the measurement of galvanic skin responses (GSR's), it is the change in electrical potential between two skin areas that appears to provide a measure of this response.[29] In the early stages of the pilot study, consideration was given to the possible use of a ring form of galvanic skin response (GSR) electrode devised by Levonian[30] which would have allowed the subject to move his writing hand when use of the paper and pencil response technique of Squires Empathy Test was first contemplated. However, it was found that general movement of the writing hand by use of either the Levonian or Beckman type of electrodes would tend to cause a confounding of the data obtained from the other simultaneously recorded responses, namely, changes in heart rate, finger blood volume and respiration rate. Therefore, it was decided to employ the procedure of oral response which would eliminate the necessity of the subject moving. Inasmuch as the Beckman biopotential electrodes were being used as sensors for the heart beat it was decided to use an additional pair of them as sensors for skin conductance. It was also found the best experimental conditions for measuring the four physiological responses of changes in skin conductance (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV) existed when all sensors were placed in positions far enough apart from one another so that overlapping of input signals to the Beckman Type R Dynograph was avoided. This overlapping was sometimes shown as either irregular pen deflections on the data tracking paper or as a heart beat record superimposed upon a galvanic skin response (GSR) record. Therefore, the best placement for electrodes was found to be one on the palm of each hand for measures of skin conductance and one on the external surface of each upper arm, adjacent to the brachial artery, for measuring the heart beat.

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[28] Robert S. Woodworth and Harold Schlossberg (Eds.), Experimental Psychology (New York: Holt, Rinehart and Winston, 1963), pp. 138-139.

[29] Robert S. Woodworth and Harold S. Schossberg, pp. 142-143.

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[30] Edward Levonian, "Skin Resistance Electrode for Classroom Use," Psychological Reports, XIII (October, 1963), p. 457.

The most convenient method for measuring respiration was by use of a thermocouple composed of two fine wires, copper and platinum. These wires were twisted together and mounted on a headpiece so that the thermocouple fitted directly yet, without touching, beneath the nostril. Slight temperature changes resulting from expiration and inspiration across the thermocouple were translated as input signals and recorded. This above-described apparatus was more convenient and less cumbersome for the subject than the more traditional pneumograph technique which involved an expandable belt that fitted around the chest or abdomen. When the subject responded orally the record from the thermocouple was not interrupted appreciably so that clear respiration data were obtained. During the pilot study it was also learned that it was important to observe whether the subject's breathing habits were usually oral or nasal and, in the use of the latter, if one particular nostril was favored. It was also necessary to maintain a firm yet comfortable fitting with the headpiece so that the thermocouple would not slip too far from the breathing point. These preceding observations and checks were necessary in order to avoid faulty and or shallow respiration records.

In order to assess changes in finger blood volume as a function of total blood volume, a Grass Company model number PT5 volumetric transducer with its appropriate size of oncometer (finger cup) was employed. The procedure for measuring changes in finger blood volume involved the following preparation:

1. placing an oncometer of appropriate size on the subject's finger.
2. preventing leakage of air from the oncometer by use of a satisfactory seal.
3. attaching a rubber tubing one quarter inch in diameter from the oncometer to the transducer.
4. adjusting the subject's hand so that it was in a comfortable and resting position on the arm of the chair.

Further piloting revealed that the most effective seal was ordinary oil modeling clay rather than caulking paste in that the clay was pliable and yet easily removable and replaceable. Also, any finger of the hand could be used as long as the oncometer covered the distal phalanx of the finger at least to the first articulation from the end of it. It was also necessary to check that the finger in the oncometer did not touch the exit end from which the rubber tubing was attached. Otherwise, records of adequate responses were impeded. A last but important factor taken into consideration in the construction of this apparatus was that the shorter the tube length the more accurate record of response was obtainable.

Obtaining an Effective Response Setting

For convenience and as a means for maintaining consistent experimental conditions, it was decided to test each subject individually. The subject remained in a testing room adjacent to a control room. The testing room contained a reclining chair in which the subject was seated. A picture screen approximately three feet by four feet was mounted in view of the subject as he was seated in a reclined position. All sensor leads were conveyed from a panel on a wall behind the subject and were then connected to the Beckman Type R Dynograph housed in the control room.

This type of lead pattern made it convenient to replace sensors needing to be adjusted or repaired in that each was plugged into a coded panel. A two-way window on the wall behind the subject permitted the slides of picture sets mounted on the carousel in the control room to be projected on to the screen in front of the subject. In order for the subject to hear the dramatic dialogues a speaker was mounted on the wall behind the subject and wired to the tape recorder in the control room. The experimenter had to remain in the control room during the testing period to monitor and record all responses being measured. Therefore, an intercom system was constructed between the testing room and the control room so that the subject's oral responses could be easily heard.

The pilot study revealed important factors concerning audio aspects of the investigation. For example, in an attempt to prevent forced variations in loudness of the subject's oral responses from confounding the autonomic or physiological responses being assessed by the audio-visual stimulus testing situation, it was found necessary to check the modulation of his voice before beginning the testing. The volume control was therefore set to accommodate his voice quality so that he could respond orally to test items in his natural speaking voice. In an attempt to control variability of audio-stimulation the volume on the tape recorder for listening to the dialogues remained at a constant setting for all ten subjects used in the pilot study. This setting also remained constant for all subjects in the entire investigation. In the early stages of the pilot study a set of six pictures and a dialogue were presented simultaneously and then the oral response was given by the subject. Under these conditions the cognitive or perceptual component of empathy and the affective or tonal component of empathy were being assessed simultaneously. In an attempt to obtain a more distinct measure of each component it was decided, for purposes of this investigation, that a dialogue would be presented first for assessing the affective component of empathy, primarily.

Following a dialogue a picture set would be presented for thirty seconds during which time the subject would give an oral response. This presentation of the picture set and elicitation of an oral response, primarily constituted the cognitive or perceptual component of empathy.

Acquiring Facility in Monitoring and Recording Responses

Inasmuch as six sensors were used for monitoring each subject's responses it was necessary to gain facility in applying each sensor to its proper position and in checking that each sensor was in working order before testing began. This preparation was necessary in order to avoid any interruptions during the actual testing situation. The pilot study revealed that the most efficient method for the application of each sensor was as follows:

1. The respiration apparatus was mounted on the head first because the subject's hands were free so that he could assist in

holding the headpiece while the experimenter adjusted the expandable cloth headband supporting it and the thermocouple under the subject's nostril.

2. The external surface of the palms of both hands and the upper external skin surface of both upper arms adjacent to each one's respective brachial artery were wiped clean of natural body oils by use of a cotton ball moistened with rubbing alcohol. This procedure provided a better surface contact for the electrodes thereby enhancing chances for more accurate data collection.
3. Each electrode was composed of a circular zinc metallic element encased in plastic approximately one inch in diameter. The electrode case contined four pin-head holes into which a small amount of gelatin was injected. This gelatin actually commercially produced Beckman

Electrode Gel, was non-toxic and merely served as an aid to increasing contact between the electrode and the skin surface. Circular transparent collars similar to scotch tape were used to attach each electrode to the skin. These collars were adhesive on both surfaces, therefore, easily removable and replaced by new ones for each subject.

4. After the above-described sensors were applied, the appropriately-sized oncometer was placed on the finger and properly sealed with modeling clay.

A hydration period lasting ten to twelve minutes was primarily established for permitting the subject to adapt to the experimental setting. This period also provided time for the experimenter to manipulate and balance all controls on the Beckman Type R Dynograph in readiness for the testing situation.

An additional three minute baseline or

relaxation period was also established directly following the hydration time. This baseline period was considered an essential part of the testing situation in that it measured a subject's physiological response patterns, in terms of the four variables under consideration, at his relaxed or prestimulus level. As an attempt to insure a minimum of audio and visual distraction throughout the experimental situation and in order to assure the best possible prestimulus level each subject was seated in darkness during the hydration, baseline, and stimulus periods.

When the main electronic control of the Beckman Type R Dynograph was switched to the "on" position a data ink recording pen for each respective sensor input signal was set under the control of a preamplifier coupler and an amplifier coupler. Each coupler control operated independently of the other from an "off" position to various degrees of input sensitivity once the main switch of the Beckman Type R Dynograph was placed in the "on" position. Each coupler needed to be set for proper sensitivity so that static or other electrical overflow was screened out of the sensor input signal being tracked. During the pilot study the experimenter gained facility in manipulation of these controls so that the input signal from each sensor for each variable namely, changes in skin conductance (GSR), heart rate (HR), respiration rate (RR), and finger blood volume (FBV) could be converted to clear pen recordings and tracked on the moving data paper. The pens monitoring changes in skin conductance and finger blood volume were susceptible to wide deflections and therefore required a balance control dial to be set and sometimes rebalanced during the hydration, baseline, or actual testing periods. The experimenter needed to become adept at rebalancing the pen and recording the control dial setting numbers at the point of rebalancing while the data paper was moving.

It was decided to track pen recordings for all four variables under consideration at a rate of five millimeters per second. This speed was adequate to provide meaningful data. For example, heart rate records on electrocardiographs are known to be produced at twenty-five millimeters per second so that meaningful interpretations can be made of the systolic and diastolic beat of the heart. However, for purposes of this study only the rate of heart beat was of importance and the speed of five millimeters per second provided a record clear enough to count the peak of each heart beat. Records of rate of change in respiration and changes in skin conductance and finger blood volume were found to be adequately discernible at this same paper speed.

A toggle switch on the Beckman Type R Dynograph Recorder controlled an additional ink pen which served as an "event marker". For example, every time each dialogue, each slide, and each oral response was presented, the toggle switch simultaneously was manipulated rapidly from an "on" to an "off" position causing the ink pen to "event mark" the point at which each dialogue and each slide began and ended as well as the point where the oral response was elicited. The experimenter was also responsible for recording the actual responses given by the subject at the point of his response. A timer sychronized with an ink pen automatically marked intervals in seconds parallel to all other pen recordings so that observations could be made of time intervals for any events tracked. This timer was found to be particularly useful in rating the length of hydration and baseline periods. As a result of the pilot study the experimenter gained facility in simultaneously observing the automatic timer, in recording dial readings of pen rebalances or amplification sensitivity, and in marking events with the toggle switch as each occurred throughout the testing situation.

Getting Consistent Time and Sequence

Slight variability in the speed of the tape recorder turntable made it difficult to ascertain a perfectly consistent time period from subject to subject for the entire stimulus presentation. However, during the pilot study the experimenter attempted to train himself to mark fairly consistently by carefully watching the timer and listening to the narrated item number preceding each dialogue as well as each subject's oral response and the carousel trigger sound preceding each slide presentation. These cues served as an aid so that the experimenter learned to mark, by use of the toggle switch, with a fair degree of regularity. Therefore, by continual practice the experimenter was eventually able to minimize variations in his reaction time to each event to be recorded.

Upon completion of the pilot study the experimental time period per subject was found to be approximately fifty-five minutes. This period included the following:

orientation of the subject = 10 minutes
hydration period = 10-12 minutes
baseline period = 3 minutes
stimulus presentation = 28-30 minutes

Orienting the Subjects

As indicated under the section concerning the selection of subjects, Page 69, each prospective participant was randomly selected. There were two periods of orientation prior to each subject's actual testing which were as follows:

1. The initial appointment interview

   This occasion involved telephoning or meeting with a randomly selected subject in advance of the testing time. The prospective subject was informed that this study was to determine what an individual's feelings might be to a life situation(s) which would be presented to him by pictures on slides and word descriptions on tape recordings. It was further explained that he would be asked to be seated in a reclining chair while he listened to recorded dramatic dialogues from television plays. Following these dialogues he would be shown slides to which he would respond orally. While participating in this manner certain sensors would be applied to him for monitoring his physiological responses. In addition he was told that his participation was to be on a voluntary basis and that all of his responses would be coded to assure anonymity. Subsequent to the testing of all subjects an honorarium of two dollars would be mailed to him and upon completion of the study he would receive an abstract of it. Sample letters to the subjects are shown in the Appendix. Individual appointments for testing were then arranged for each randomly selected subject contacted.

2. The acclimation to testing.

Upon arrival at the laboratory the major points of the initial appointment interview were reviewed with the subject. Each subject completed an authorization form as shown in the Appendix. The completion of this type of form is a routine procedure for federally-funded research involving human subjects. This study was funded under a grant from the U.S. Office of Education, Department of Health, Education and Welfare.

While each subject was seated in the reclining chair the experimenter explained the general testing conditions namely, that in order to obtain accurate measures, it was important for the subject to refrain from moving once the testing began, that the room would be darkened to minimize distractions, and that there would be no unexpected or surprising presentations. The functions of each of the sensors used were briefly explained as each was applied. For example, ... "This sensor attached to your arm will help us obtain a measure of your heart rate ...." In this manner the subject became familiar to and comfortable in the setting.

Testing the Subjects

The procedure for testing each subject was as follows:

1. All sensors were applied as the subject was seated in a recliner chair. As described in the section under preparing to use the instruments, Page 82, a thermocouple was mounted under the nostril for measuring changes in respiration, an electrode was applied to the palmar surface of each hand for measuring changes in skin conductance, an electrode was applied to the external surface of each upper arm, adjacent to the brachial artery, for measuring changes in heart rate, and an appropriately sized finger cup (oncometer) was placed on one finger to measure changes in finger blood volume.

2. The subject was asked to remain in a reclined and resting position and to refrain from moving.

3. The experimenter explained that there would be a relaxation period of approximately twelve minutes during which time the subject was to remain quiet and comfortable, that if he cared to close his eyes and rest he was welcome to do so. He was also told that the testing room would be unlighted during experiment except for the slides presented.

4. The experimenter explained that following the relaxation period the subject would hear a narrated set of directions for responding to the test situation. These directions would indicate the beginning of the testing but the experiment officially would begin when the relaxation period started. The relaxation period

was to begin when the experimenter left the testing room and turned off the light.

5. The directions to be heard on the tape recorder were then given by the experimenter just as they would be heard by the subject. In this way the subject could ask any questions pertaining to them prior to the actual tape recorded presentation and thus unnecessary interruptions could be avoided later. The directions were as follows:

> ... you are going to listen to eleven recorded dialogues taken from actual televised plays. Each recording will be followed by a set of six pictures related to the dialogue. At the end of each recording, when the dialogue is stopped, you are to select the picture you feel to be most appropriate at that particular moment. You are to make your selection by saying out loud the number of the picture you have chosen. For example, if you think the picture is number two, you would say two. The same procedure will be repeated for a total of eleven sets ....

6. Following these directions the subject was told that each of the pictures on a slide would be numbered from one to six. The slide would be presented for thirty seconds during which time he was to give his oral response.

7. It was necessary to adjust the volume on the intercom between the testing room and the control room so that experimenter could hear the oral responses clearly when recording them. Therefore, the experimenter regulated the volume while the subject counted from one to five in a clear but unstrained voice. The importance of voice quality during the oral response was explained earlier on Page 93.

8. After all of the subject's questions were answered, the sensors applied, and all controls were properly adjusted to allow input signals from the sensors to be

recorded, the experimenter closed the testing room door and began monitoring the testing from the control room.

9. After the relaxation period ended a baseline of three minutes was established.

10. Following the baseline the narrated directions were presented by turning on the master switch which synchronized the movement of the tape recorder with the slide projector carousel.

11. The tape recorder proceeded as follows: ... the following is item number one .... The point at which the item number was narrated was marked on data tracking paper.

12. The dramatic dialogue followed and the experimenter continued to monitor all pen recordings on the Beckman Type R Dynograph.

13. When dialogue 1 ended, slide 1 was projected onto a viewing screen in front of the subject. The subject then responded orally by giving the number of the picture he decided most closely related to the dialogue he heard.

14. The experimenter marked the point at which the subject responded and recorded the subject's answer on the tracking paper next to that point. The marked interval, measured in millimeters, between the presentation of the slide and the subject's oral response provided an index of latency of response.

15. The sequence of dialogue, slide, and oral response continued until eleven dialogues, eleven slides, and eleven oral responses were obtained for the subject.

16. At the close of the stimulus presentation the light in the testing room was

turned on. The major control switch of the Beckman Type R Dynograph recorder was then switched to off position in order to avoid erratic pen movement when all sensors were removed from the subject.

Treatment and Analysis of the Data

These aspects of the procedures will be discussed in detail in the following chapter.

CHAPTER IV

TREATMENT AND ANALYSIS OF THE DATA

Introduction

The procedures described in the previous chapter were employed for determing the differences between counselors and non-counselors in terms of the affective (tonal) component of empathy and the cognitive (perceptual) component of empathy. The treatment and analysis of the data collected as a result of investigating each of these components are actually part of the methodological aspects of this study. However, there were six dependent variables involved in the accumulation and assessment of the data; namely, changes in galvanic skin responses (GSR's), heart rate (HR), respiration rate (RR), and finger blood volume (FBV) as well as verbal responses (VR) and measures of response latency (RL). Therefore, it seemed reasonable to devote a separate chapter for an explanation of how the data were treated in terms of these variables. Thus, this chapter will be concerned with the following:

1. the conversion of raw data into digital form.
2. the statistical analysis of the digitized data.

Conversion of Raw Data into Digital Form

As indicated on Pages 97-100 of the procedures, all data in their original form were collected as converted input signals translated into pen recordings along with recorded oral responses. All recordings were monitored on a Beckman Type R Dynograph Direct Writing Recorder and a separate uninterrupted paper track of data was obtained for each subject.

In order to begin translating these data into meaningful information, as preparation for statistical analyses, it was necessary to establish intervals so that responses would be converted into standard quantifiable units. It was discovered that the tape recorder used for presentation of the audio portion of the stimulus content, i.e., the dramatic dialogues, did not run at constant speed, so unavoidable variations occurred in the time length for each subject's data record. Likewise, each dramatic dialogue presented was of a different time length. Because of these two variations, an unequal total number of intervals was derived from track to track. These inequalities would cause difficulty in making statistical comparisons from subject to subject in that intervals for one subject's responses, when compared to another's, would not be a result of parallel stimulus presentations. In order to compensate for the inequalities and to obtain parallel intervals, a set of intervals was established for the entire stimulus presentation. A list of these intervals and their corresponding events are presented in Table 4. The first ten-second segment for each event was established as a standard for all events, so that standard time intervals for comparison would be available. The second time segment for

TABLE 4
A LIST OF EACH EVENT PRESENTED
DURING THE EXPERIMENTAL SETTING WITH
THE DESIGNATED TIME INTERVALS USED FOR DATA ANALYSIS

			Duration of Interval In Seconds		
Event Number	Event Occurring	Interval Number	First Segment	Interval Number	Second Segment
1	B_1	1	10	2	50
2	B_2	3	10	4	50
3	B_3	5	10	6	50
4	Instructions to D_1	7	10	8	30
5	D_1	9	10	10	50
6	S_1	11	10	12	20
7	D_2	13	10	14	60
8	S_2	15	10	16	20
9	D_3	17	10	18	50
10	S_3	19	10	20	20
11	D_4	21	10	22	40
12	S_4	23	10	24	20
13	D_5	25	10	26	40
14	S_5	27	10	28	20
15	D_6	29	10	30	15
16	S_6	31	10	32	20
17	D_7	33	10	34	20
18	S_7	35	10	36	20
19	D_8	37	10	38	90
20	S_8	39	10	40	20
21	D_9	41	10	42	15
22	S_9	43	10	44	20
23	D_{10}	45	10	46	40
24	S_{10}	47	10	48	20
25	D_{11}	49	10	50	20
26	S_{11}	51	10	52	20

B = Baseline
D = Dialogue
S = Slide
Subscripts = Sequential identity

each event was established in order to encompass the major and significant portions of the subject's response pattern for the respective event.

The next conversion to consider was that concerning skin conductance measures. Changes in skin conductance, termed galvanic skin responses (GSR's), were measured in each interval as millimeters of deflection from a baseline. The Beckman Type R Dynograph provided measures of skin conductance in ohms (units of electrical resistance) ranging from zero to two megohms (2,000,000 ohms). As indicated on Page 99 in the preceding chapter varied reactions of the subject to the stimulus content made the recording pens of the dynograph susceptible to wide deflections. Therefore, a control dial on the dynograph was used to balance or rebalance the pens so that continuous measures could be obtained. Balance readings, indicated as dial divisions, each division equal to 2000 ohms, were taken for baseline readings. When a pen deflection occurred beyond the pen recording range, a rebalancing was necessary and a new dial reading was marked on the data sheet at the rebalance point. The graph on Page 119 shows the relationship between the baseline level in dial divisions, on its vertical axis, and the dial divisions, per millimeter of deflection, on its horizontal axis. Thus, it was possible to convert distances in millimeters of deflection into standard baseline level readings.

The value of the original baseline balance reading located along the vertical axis, multiplied by the reading obtained along the horizontal axis, yielded a converted millimeter deflection into dial divisions. The new dial division reading derived was converted to ohms by multiplying by 2000. The value in ohms needed for the interval was obtained by adding this value to the ohms value of the original baseline reading. Therefore known equivalents in units of resistance (ohms) per dial division permitted easy conversion of baseline readings into representative units of measurement for changes in skin conductance (GSR's). For purposes of this

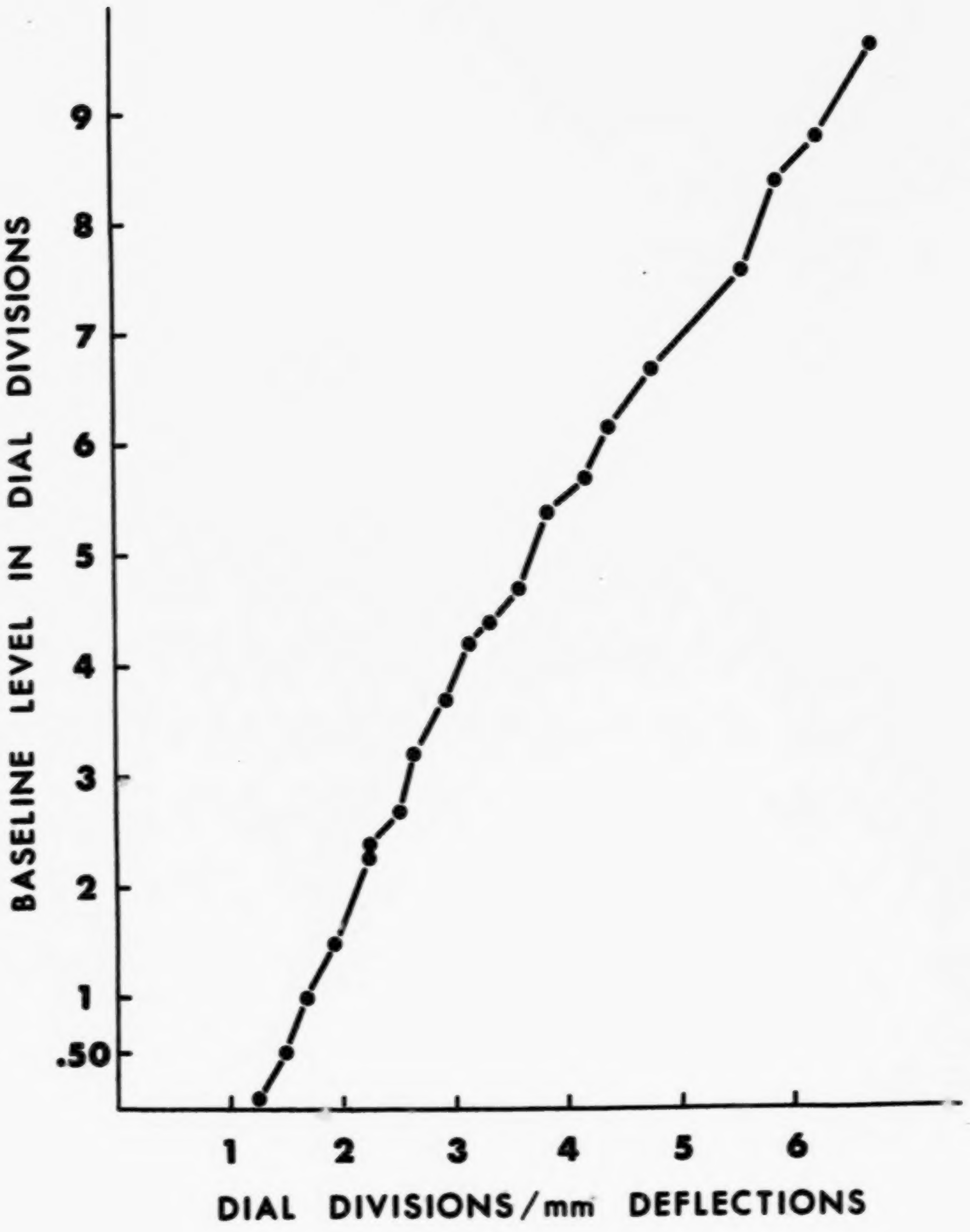

Figure 1. The relationship between baseline level and preamplification sensitivity.

study, the unit of measurement was a unit of conductance called a micromho, the reciprocal of the megohm. According to Woodworth and Schlossberg,[1] this unit of conductance is frequently used for statistical treatment of skin conductance data.

Changes in heart rate (HR) were recorded as systolic and diastolic beats by use of Beckman biopotential electrodes as described in the preceding chapter on Page 88. Changes in heart rate were determined by counting the number of peak (systolic) beats for each interval and multiplying sixty with each interval score to obtain the peak rate.

Inasmuch as respiration volume is difficult to measure without a complicated apparatus, respiration rate was accepted as the index of breathing activation. The apparatus for obtaining this latter index was described in the preceding chapter on Pages 89 and 90. Respirations were recorded as wave-frequency patterns reflecting inspiration and expiration. Rate of respiration (RR) was measured by counting the number of wave peaks per interval.

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[1] Robert S. Woodworth and Harold Schlossberg (Eds.), Experimental Psychology (New York: Holt, Rinehart and Winston, 1963), pp. 140-141.

Changes in finger blood volume (FBV), a function of blood pressure, is an indirect measure of peripheral vasoconstriction and vasodilatation and has been considered as sensitive to stimulation as the galvanic skin response (GSR).[2] As such, it was assessed by use of a finger cup (oncometer) in a closed system as described in the preceding chapter on Pages 91 and 92. The responses recorded appeared as a slow deflecting wave-form with super-imposed pulse waves. As seen from Figure 2, changes in finger blood volume (FBV) were measured in each interval as millimeters of deflection from a standard reference point. The edge of the tracking paper nearest to the timer record was designated as the standard reference point. A deflection toward the reference point was indicative of vasoconstriction

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[2] Richard A. Sternbach, Principles of Psychophysiology (New York: Academic Press, Inc., 1966), p. 69.

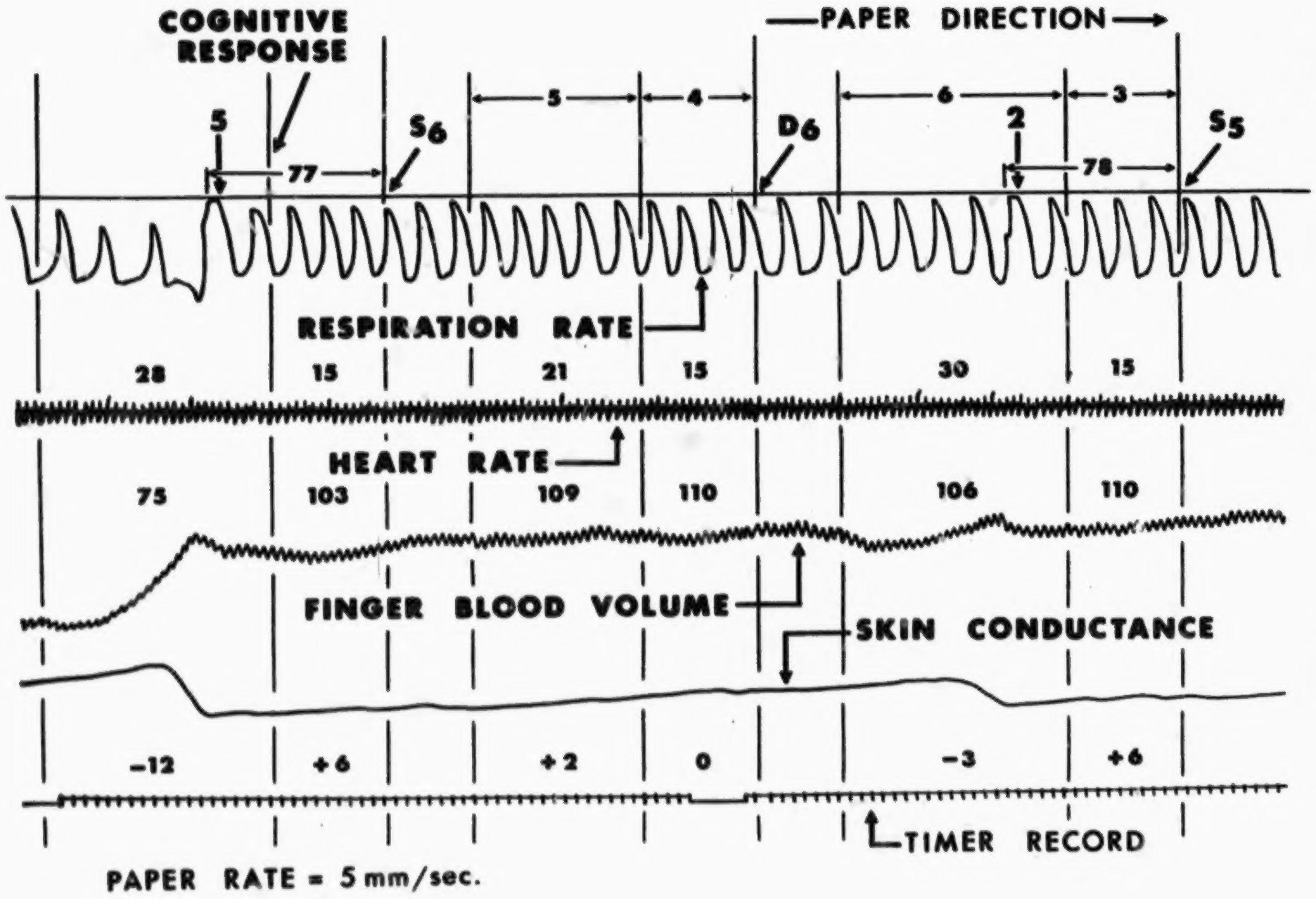


Figure 2. Sample data track illustrating records of affective and cognitive responses during a stimulus interval.

and a deflection away from the reference point as indicative of vasodilatation.

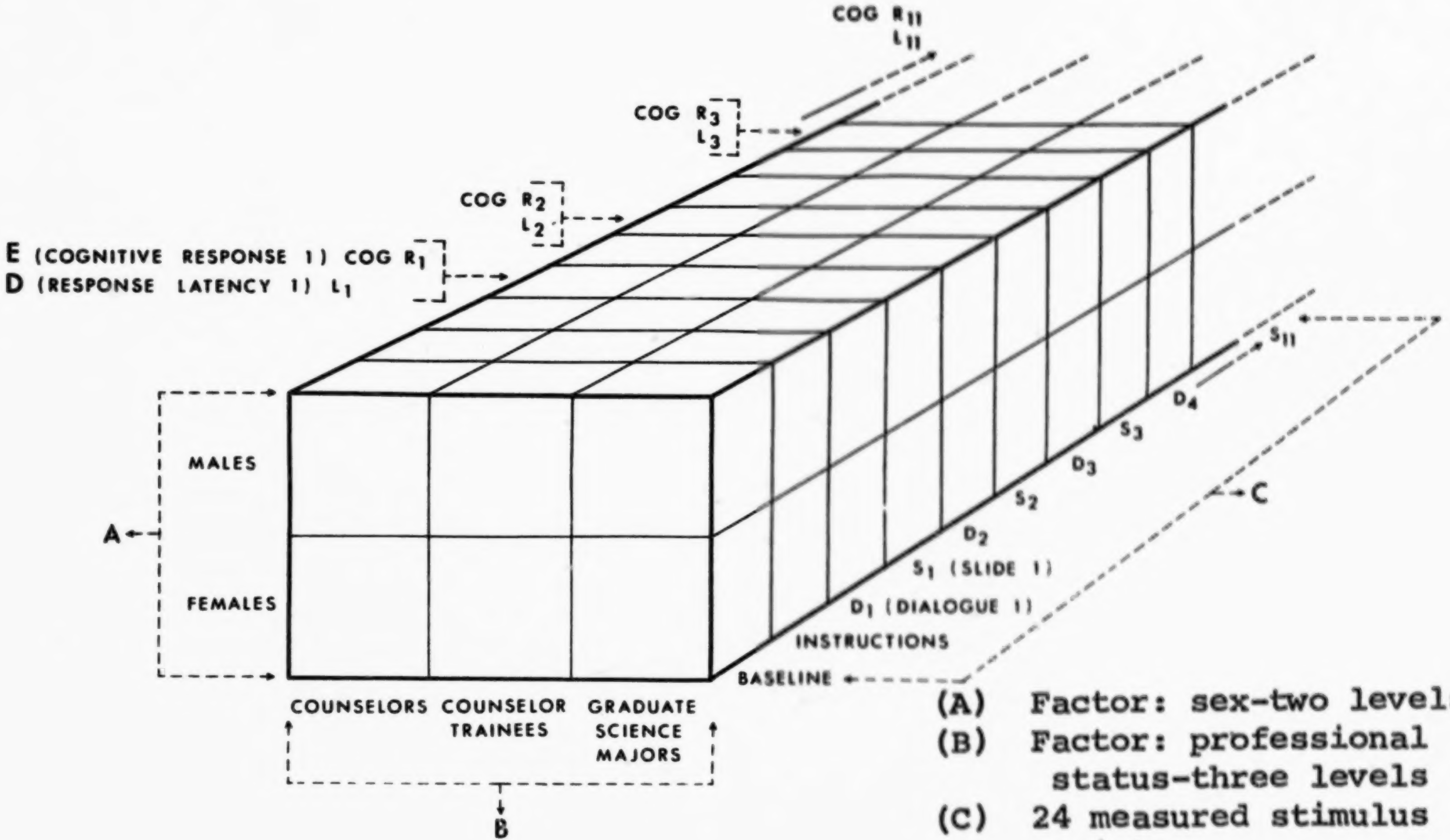
The time lapse from the onset of a slide to the point at which the subject gave an oral response was designated as a period of response latency (RL). This period was recorded as distance in millimeters from the point of each slide presentation to the elicitation point of each respective oral response. Oral responses were made as a number from 1 through 6. Each number corresponded to the appropriate picture number on each slide which contained six pictures. Responses were assessed by use of a key scoring procedure.

Figure 2 on Page 122 provides an actual segment of a subject's response record taken from a data track illustrating a pattern for each of the previously described dependent variables. Also shown is the point at which a cognitive (oral) response was elicited as well as the cognitive response itself. D_6 designates the onset of dialogue 6 and the bracketed numbers following it, namely 4 and 5, illustrate the number of peaks for respiration in the respective ten and fifteen second interval. The timer records marks for each second. S_6 designates the onset of slide 6. The line extended from S_6 to cognitive response 5 indicates the response latency as distance in millimeters. Changes in skin conductance, finger blood volume, and respiration are discernible as pen-recorded deflections for each slide and dialogue presentation.

Statistical Analysis of the Digitized Data

Means and standard deviations for each interval score on each dimension, for all subjects, in each criterion group were obtained first. For example, referring to Table 4, all scores for finger blood volume responses in interval one (the first ten second segment of event number one) were averaged for all counselors and the standard deviations for the score of that interval was computed. In order to retain meaningful results and yet meet specifications for computer programming, as well as to provide a clear graphic representation of means, as shown in Figures 4 through 8 on Pages 135-139 in Chapter V, the first and second segment of each event were averaged. The means derived in this way were referred to as "blocked" means. The baseline "blocked" mean was taken as the average of its six segments which are shown in Table 4. The number of "blocked" means, including the baseline mean and the mean for the instructions, totaled twenty-four intervals.

For purposes of this study, two-way analyses of covariance were then utilized with age of subjects and baseline mean as covariates. The results from these procedures will be explained in the following chapter. Figure 3 provides a diagrammatic representation of the two-way design considered for statistical analyses of the data obtained from the variables assessed in this study. These variables consisted of measures of skin conductance (GSR's), finger blood volume (FBV), response latency (RL), and cognitive responses (COG R). As illustrated in Figure 3 the three criterion groups among which comparisons were


E (COGNITIVE RESPONSE 1) COG R_1
D (RESPONSE LATENCY 1) L_1
COG R_2
L_2
COG R_3
L_3
COG R_{11}
L_{11}
MALES
FEMALES
A
COUNSELORS
COUNSELOR TRAINEES
GRADUATE SCIENCE MAJORS
B
BASELINE
INSTRUCTIONS
D_1 (DIALOGUE 1)
S_1 (SLIDE 1)
D_2
S_2
D_3
S_3
D_4
S_{11}
C

(A) Factor: sex-two levels
(B) Factor: professional status-three levels
(C) 24 measured stimulus points
(D) 11 measures of latency of response
(E) 11 measures of cognitive responses

Figure 3. Two-way design for analysis of each dependent variable.

made consisted of counselors, counselor trainees, and graduate science majors. Because of mechanical difficulties while recording responses during the testing situation, data on finger blood volume for one subject were found to be unsatisfactory and therefore omitted from the analysis of that measure.

In those cases where a more powerful test of the significance of differences was to be made between concomitant variables across the three criterion groups (for example, the point of instructions or any of the other points throughout the stimulus presentation such as dialogue one, slide one ... through slide eleven), data were transformed into orthogonal polynomials. These transformations made it possible to test whether there were significant differences among the linear and quadratic trends of the groups. As indicated by Bock and Haggard:

> ... orthogonal polynomials can be employed to facilitate the regression analysis of possible curvilinear relationships between the dependent and the concomitant variables ....[3]

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[3] R. Darrell Bock and Ernest A. Haggard, Handbook of Measurement and Assessment in Behavioral Science, ed. Dean K. Whitla (Reading, Mass: Addison-Wesley Co., in Press), p. 121.

In other words, the procedure of transforming variable data into orthogonal polynomials made it possible to eliminate slight errors of measurement by using fewer numbers of variable data, thereby obtaining, what are referred to, as orthogonal or clean estimates for a regression analysis. Therefore, it was possible to make a regression analysis that would provide for a more sensitive or powerful test of significance between groups of subjects' response measures.

Correlational analyses were made between the mean correct cognitive responses and the non-cognitive (physiological) responses. These correlations were found for all subjects combined, males, females, counselors, counselor trainees, and graduate science majors.

CHAPTER V

FINDINGS

Introduction

Attempt was made to investigate operationally the affective and cognitive components of empathy as a means of distinguishing counselor behavior from non-counselor behavior. The data collected involved measures obtained from three criterion groups, counselors, counselor trainees, and graduate science majors, on six variables, namely, changes in skin conductance (GSR's), finger blood volume (FBV), heart rate (HR), and respiration rate (RR) as well as cognitive responses (COGR) and latency responses (LR). The findings presented in this chapter deal with these measures and are the result of the statistical procedures explained in the preceding chapter beginning on Page 113. The findings will likewise include the relationships between all cognitive and affective measures. Analyses of variance and covariance, as well as multivariate analyses of covariance, were computed to test for significant differences among the three groups for measures of skin conductance (GSR) and finger blood volume (FVB). Analyses of variance were computed for testing significance of age differences among the three groups. Analyses of covariance were computed for testing significant differences among the three groups for correct cognitive responses and latency of response measures. Appropriate figures and tables are presented for illustrating and summarizing findings in terms of means, probability levels, and correlations. An exposition will be given of the findings as they apply to each of the original two major hypotheses proposed for this investigation.

The Hypotheses Tested

Before reporting the findings of this study a restatement of the two hypotheses presented earlier in Chapter I is in order. They were as follows:

1. There are significant differences among the affective responses of counselors, counselor trainees and graduate science majors.
2. There are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors.

Hypothesis Number 1 was tested in terms of measures obtained from four physiological variables; namely, changes in finger blood volume (FBV), skin conductance (GSR), heart rate (HR), and respiration rate (RR). Hypothesis Number 2 was tested in terms of correct oral responses obtained from presentations of slides following tape-recorded dialogues. The five percent level of confidence was used in testing the significance of differences.

Age Differences

The mean age and standard deviation for each criterion group, i.e., counselors, counselor trainees, and graduate science majors, are shown in Table 5. Table 6 shows that:

1. counselors were significantly older than both counselor trainees and graduate science majors.
2. counselor trainees were significantly older than the graduate science majors.
3. graduate science majors were significantly younger than the average of counselors and counselor trainees.
4. counselor trainees were significantly younger than counselors.

Analysis of covariance combines the concepts of correlation and analysis of variance in such a way that differences in responses to stimulation among groups or among individuals can be analyzed for significance as if the groups or individuals are actually equal relative to some independent variable. Therefore, in light of the significant mean age differences found among the groups, it was decided to covary age as a means of equalizing groups for

TABLE 5

MEAN AGE FOR THREE CRITERION GROUPS

Group	N	Mean Age	Standard Deviation
Counselors	30	41.4	10.546
Counselor Trainees	30	31.4	7.930
Graduate Science Majors	30	27.2	4.074

TABLE 6

SIGNIFICANCE LEVELS OF AGE DIFFERENCES AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	5530.035	87	63.564		
Counselors Compared To Counselor Trainees and Graduate Science Majors	2904.049	1	2904.049	45.687	*.001
Counselor Trainees Compared To Graduate Science Majors	268.817	1	268.817	4.229	*.043

*significant

comparative analyses.

Skin Conductance

"Blocked" means as described on Page 125 of the preceding chapter were computed for each of the dependent variables; namely, changes in skin conductance (GSR), finger blood volume (FBV), heart rate (HR), respiration rate (RR), and latency of response (LR). These means are graphically represented in Figures 4-8 on Pages 135-139. Inspection of the skin conductance means in Figure 4 appears to indicate that there are significant differences among counselors, counselor trainees, and graduate science majors. Therefore, an analysis of covariance was computed to test for significant differences of the overall mean of the skin conductance response measures of each subject group, i.e., the total mean of all skin conductance responses for all intervals of each subject group were compared. Table 7 shows that no significant differences were found among groups, between any two groups, or between sexes. There was no

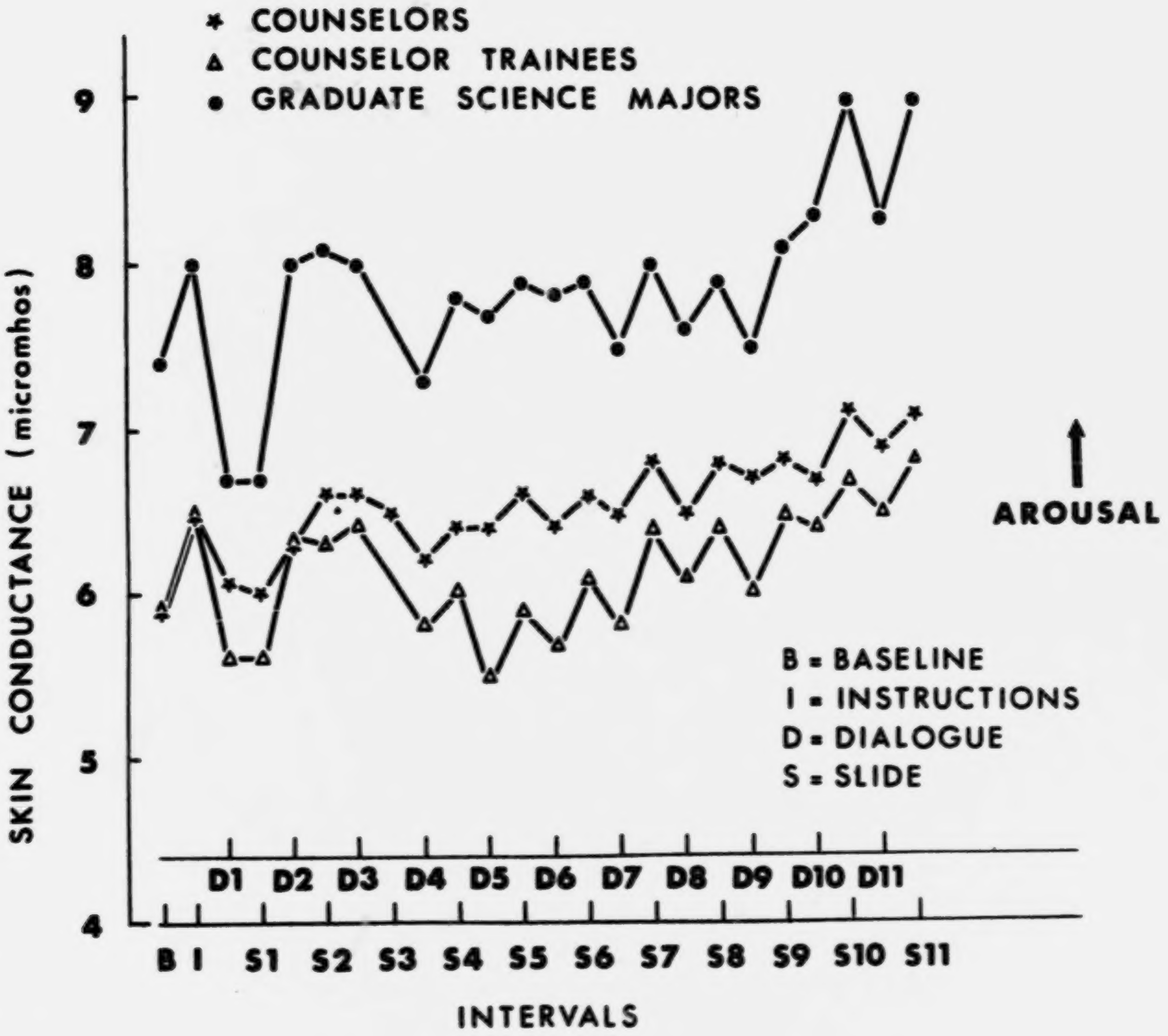

Figure 4. Skin conductance response curves for three criterion groups obtained during stimuli presentations.

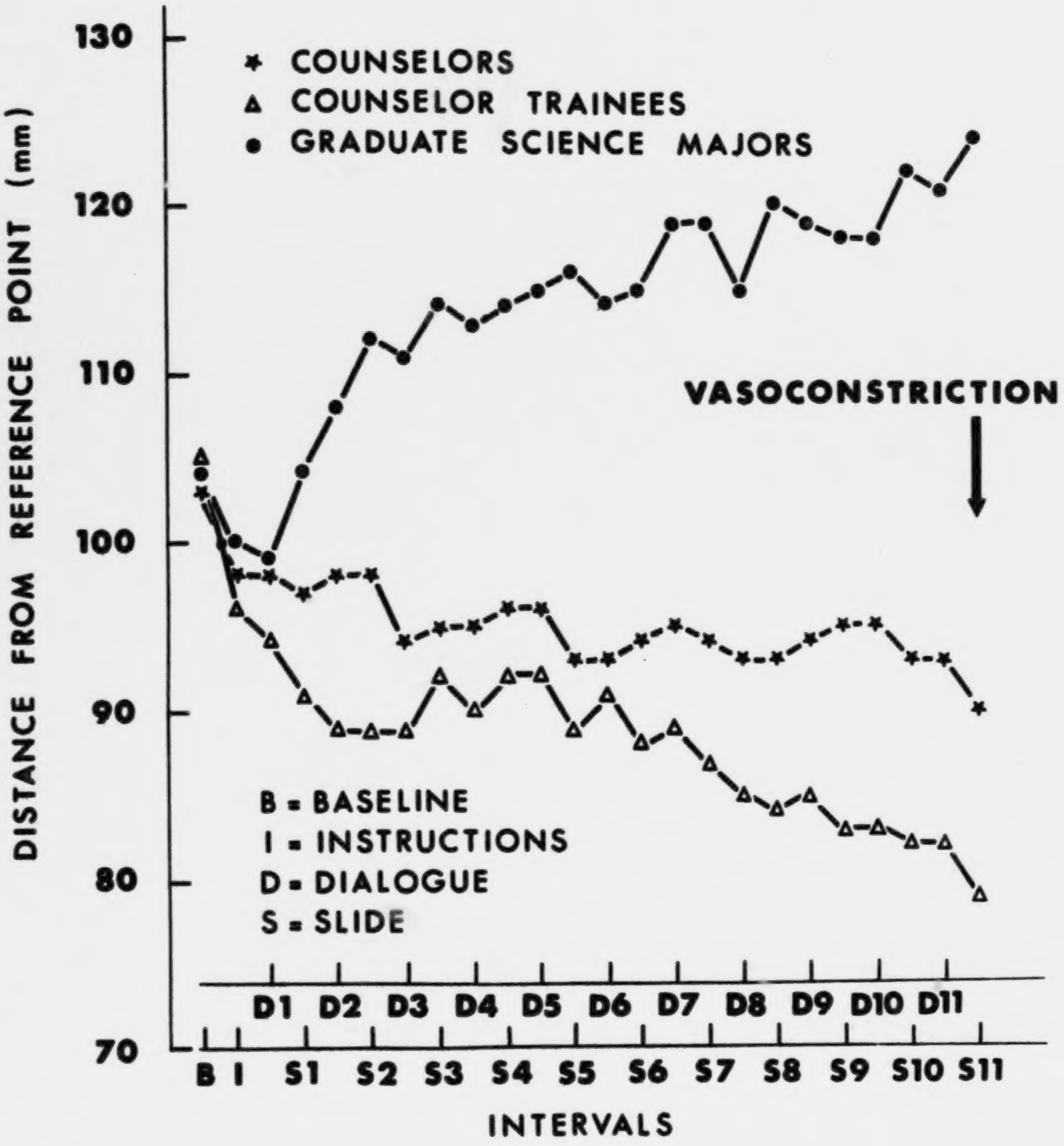

Figure 5. Finger blood volume response curves for three criterion groups obtained during stimuli presentations.

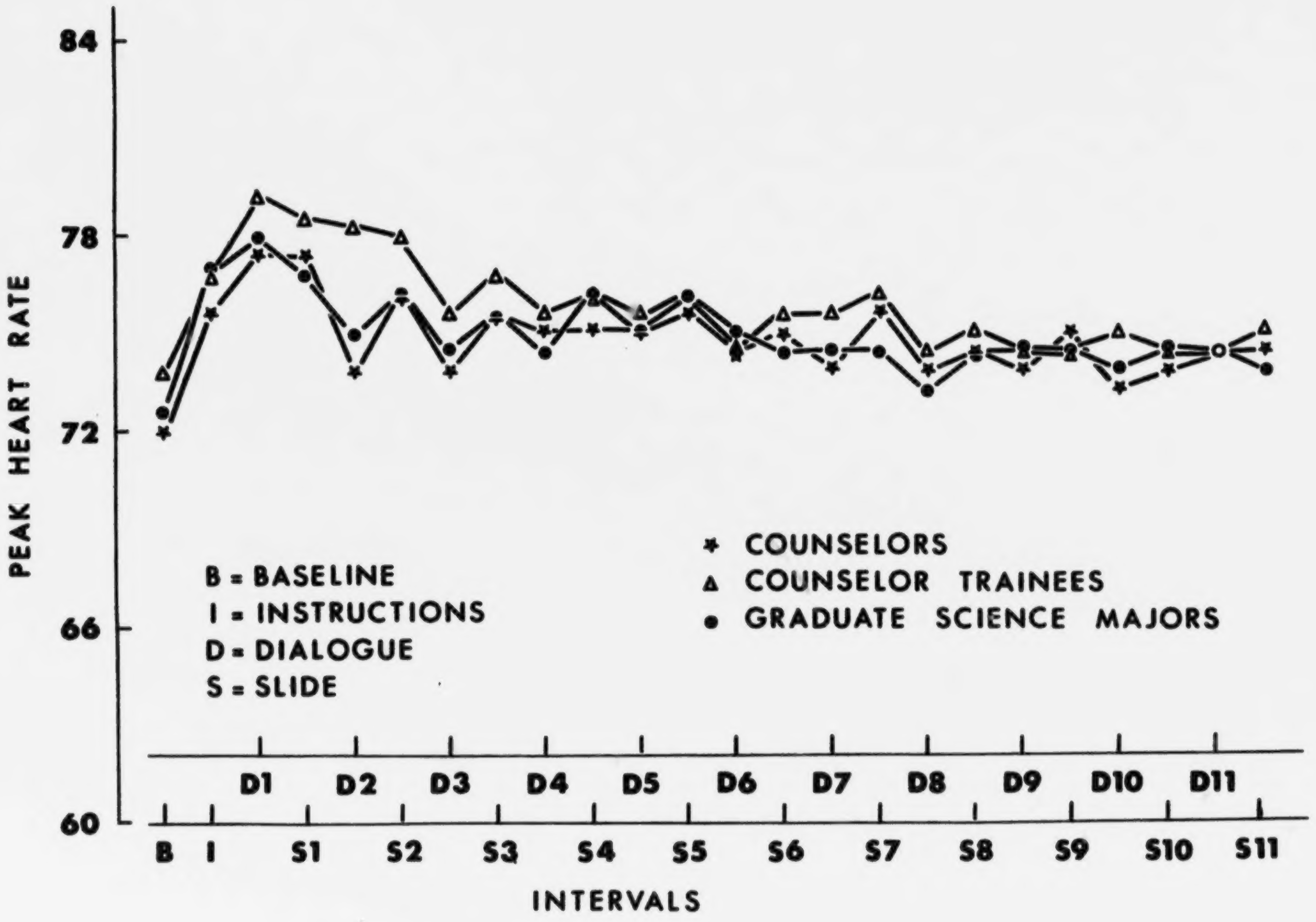

Figure 6. Heart rate response curves for three criterion groups obtained during stimuli presentations.

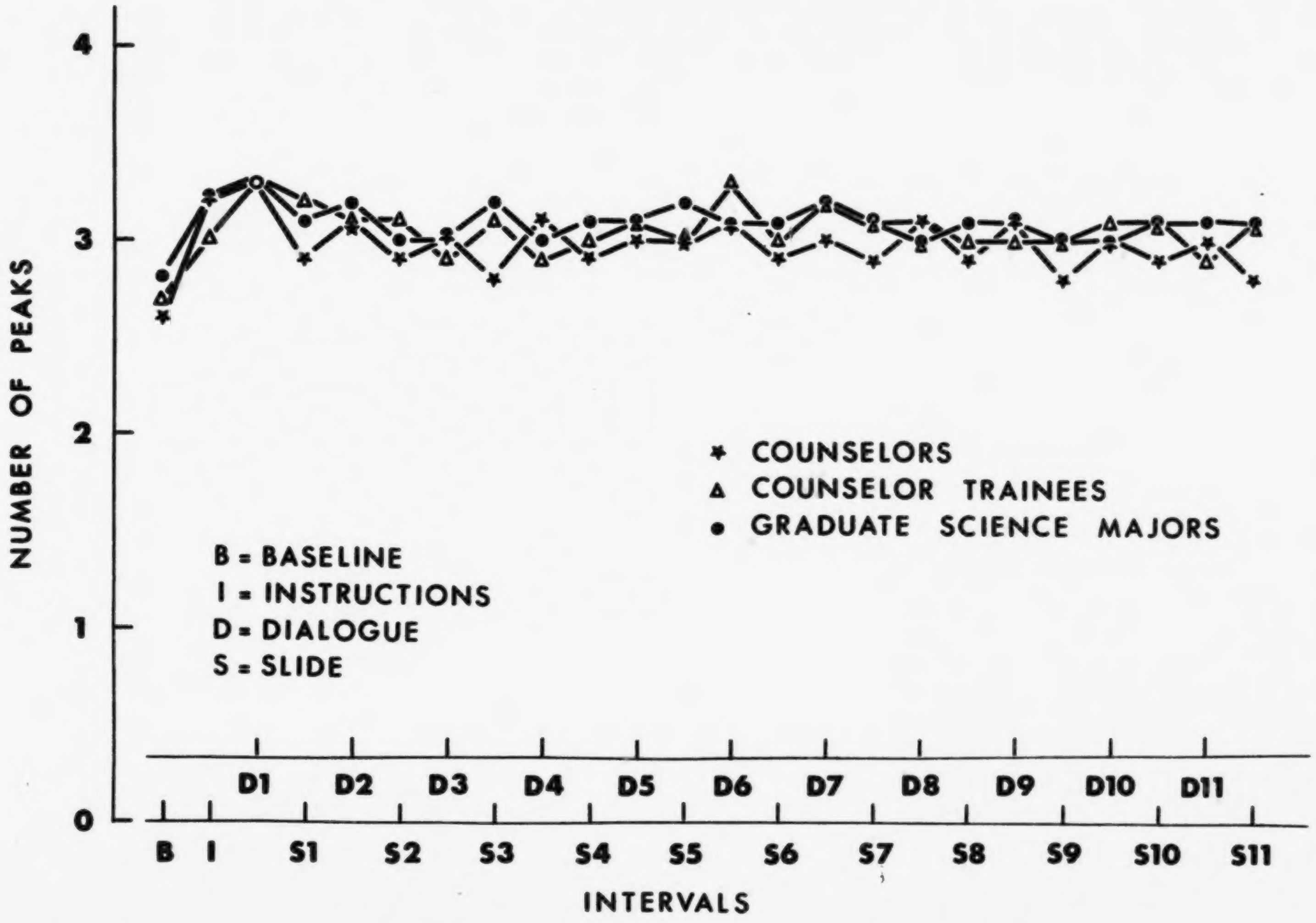

Figure 7. Respiration response curves for three criterion groups obtained during stimuli presentations.

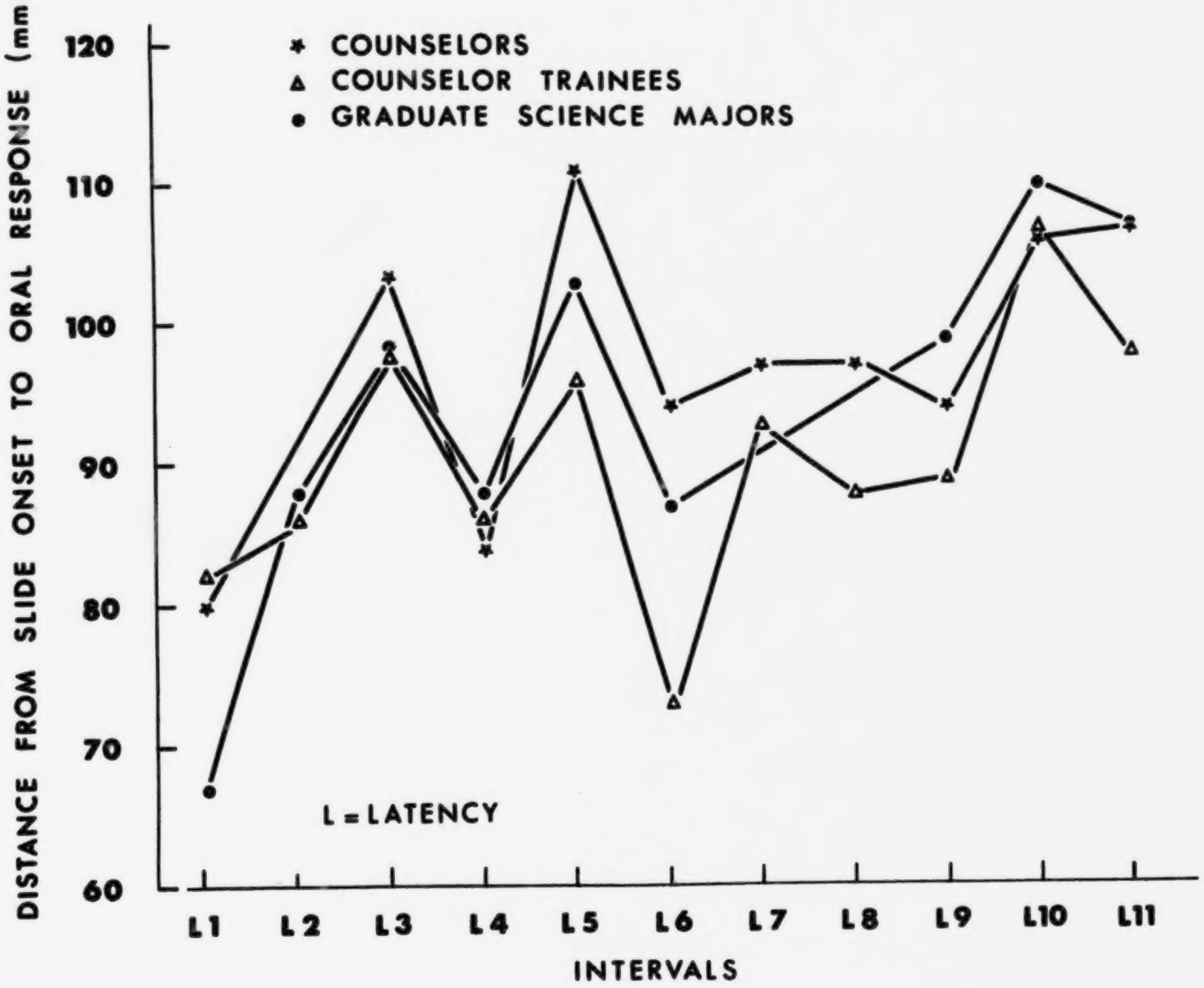

Figure 8. Latency of response curves for three criterion groups obtained during stimuli presentations.

TABLE 7

SIGNIFICANCE OF DIFFERENCES IN OVERALL MEAN SKIN CONDUCTANCE RESPONSES AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	2769.397	82	33.773		
Regression	41.602	2	20.801	.616	NS
1. Do Graduate Science Majors Differ From Counselors And Counselor Trainees?	8.622	1	8.622	.255	NS
2. Do Counselor Trainees Differ From Counselors?	13.803	1	13.803	.409	NS
3. What are Differences Among Subjects When Comparisons Between Sexes Are Made?	53.863	1	53.863	1.595	NS
Comparisons of 1. in Terms of Sex	24.515	1	24.515	.726	NS
Comparisons of 2. in Terms of Sex	10.147	1	10.147	.300	NS

significant correlation between the mean as a criterion measure and the covariates baseline mean and age. It was then decided to compute an analysis of covariance of mean responses of skin conductance across intervals from group to group with age as a covariate. For example, looking at Figure 4, it meant testing for significance among counselors, counselor trainees, and graduate science majors across each group at mean baseline and at each succeeding interval. Intervals are shown across the horizontal axes of Figures 4-8. The vertical axes of each figure reflect the unit measure for the means of each variable. For skin conductance responses the unit mean measure was micromhos, which were described earlier on Page 118 of Chapter IV. The comparative approach described above is in accord with that used by other researchers who assess repeated measures of autonomic responses. They refer to this technique as a point-to-point comparison of the effects of experimental conditions and indicate that when statistical comparisons are made obtaining general overall means for a set of repeated measures could easily mask significant effects.[1]

Table 8 summarizes an analysis of covariance of mean measures of skin conductance responses among the three subject groups and the sex factor across the mean of the baseline interval with age as a covariate. There was a significant correlation (P less than .001) between the criterion baseline mean and the covariate age. However, sources of variation among counselors, counselor trainees and graduate science majors, and, likewise, comparisons between sex were found to be statistically non-significant.

Similar additional analyses of covariance at each of the subsequent intervals revealed differences that were non-significant. Therefore, it was decided to covary baseline along with age and repeat an analysis of covariance for all intervals other than

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[1] Joseph C. Speisman, Richard S. Lazarus, Arnold Mordkoff, and Les Davison, "Experimental Reduction of Stress Based on Ego-Defense Theory," Journal of Abnormal and Social Psychology, LXVIII (April, 1964), pp. 372-373.

TABLE 8

SIGNIFICANCE OF DIFFERENCES IN BASELINE MEAN SKIN CONDUCTANCE RESPONSES AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	2996.256	83	36.099		
Regression	393.212	1	393.212	10.892	.001*
Comparisons Among Criterion Groups	98.247	2	49.123	1.361	NS
Comparisons Between Sexes	2.098	1	2.098	.058	NS
Comparisons of Sex And Criterion Groups	79.347	2	39.673	1.099	NS

*significant

mean baseline. Table 9 summarizes sources of variation for one of these 23 stimulus intervals, namely, slide 10 whose means, upon inspection of Figure 4 on Page 135, appeared to be significantly different among groups. All sources of variation indicate no statistical significance. Table 10 summarizes the levels of significance based upon analyses of covariance of mean skin conductance responses across all groups at stimulus intervals from instructions through slide 11. There was a significant correlation (P less than .001) between the covariates age and baseline mean and the criterion measure "instructions". In all other comparisons, the differences were found to be non-significant. Having covaried the mean baseline, it was not clear as to how the response curves for Figure 4 would then appear. Therefore, to make a more complete analysis, it was decided to use a more powerful method for testing for significance the differences among skin conductance responses. This method, as described on Page 127 of the preceding chapter, involved the

TABLE 9

SIGNIFICANCE OF DIFFERENCES IN MEAN SKIN CONDUCTANCE RESPONSES FOR ONE INTERVAL AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	4407.727	82	53.753		
Regression	40.315	2	20.158	.375	NS
Comparisons Among Criterion Groups	54.060	2	27.030	.503	NS
Comparisons Between Sexes	64.642	1	64.642	1.203	NS
Comparisons of Sex And Criterion Groups	56.244	2	28.122	.523	NS

TABLE 10

SIGNIFICANCE OF DIFFERENCES IN MEAN SKIN CONDUCTANCE RESPONSES FOR TWENTY-THREE INTERVALS AMONG CRITERION GROUPS

	Comparisons			
Stimulus Points	Regression	Criterion Group	Sex	Interaction of Sex and Criterion Groups
	P	P	P	P
Instructions	.001*	NS	NS	NS
Dialogue 1	NS	NS	NS	NS
Slide 1	NS	"	"	"
Dialogue 2	"	"	"	"
Slide 2	"	"	"	"
Dialogue 3	"	"	"	"
Slide 3	"	"	"	"
Dialogue 4	"	"	"	"
Slide 4	"	"	"	"
Dialogue 5	"	"	"	"
Slide 5	"	"	"	"
Dialogue 6	"	"	"	"
Slide 6	"	"	"	"
Dialogue 7	"	"	"	"
Slide 7	"	"	"	"
Dialogue 8	"	"	"	"
Slide 8	"	"	"	"
Dialogue 9	"	"	"	"
Slide 9	"	"	"	"
Dialogue 10	"	"	"	"
Slide 10	"	"	"	"
Dialogue 11	"	"	"	"
Slide 11	"	"	"	"

*significant

transformation of mean skin conductance responses into orthogonal polynomials. These transformed means were then programmed on the computer for a multivariate analysis of covariance. Table 11 presents a summary of the tests of significance based upon this kind of analysis using the Wilks Lambda criterion and univariate F tests. No statistical significance was obtained when either of these tests were made. According to Bock and Haggard[2] the Wilks Lambda test gives the likelihood ratio criterion for testing departure from a multivariate hypothesis. The results shown in these tables also indicate that there was no significant difference in the linear trend of the response curves among groups shown in Figure 4 on Page 135. In other words, if attempt was made to fit a straight line to the response curves of each group, each straight line would have slopes that could not differ more than

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[2] R. Darrell Bock and Ernest A. Haggard, "Handbook of Measurement and Assessment in Behavioral Science, ed. Dean K. Whitla (Reading, Mass.: Addison-Wesley Co., in Press), p. 111.

TABLE 11

SIGNIFICANCE OF DIFFERENCES IN SKIN CONDUCTANCE DATA TRANSFORMED INTO ORTHOGONAL POLYNOMIALS

	Tests of Significance Using Wilks Lambda Criterion				Univariate F Tests			
Test of Roots	F	DFHYP	DFERR	P	Variable	F(1,82)	Mean Square	P
1 Through 1								
1. Do Graduate Science Majors Differ From Counselors And Counselor Trainees?								
	.386	2	81	NS	Linear	.548	13.608	NS
					Quadratic	.678	8.266	NS
2. Do Counselors Differ From Counselor Trainees?								
	.232	2	81	NS	Linear	.128	3.183	NS
					Quadratic	.468	5.704	NS
A. Sex Comparisons								
	.530	2	81	NS	Linear	.976	24.236	NS
					Quadratic	.683	8.329	NS
1A.	.179	2	81	NS	Linear	.030	.743	NS
					Quadratic	.136	1.655	NS
2A.	.165	2	81	NS	Linear	.261	6.482	NS
					Quadratic	.006	.075	NS

would be expected to occur by chance.

The quadratic trend analysis also revealed no statistical significance which indicates that curves for each group are not significantly different from each other. Both the linear and the quadratic trend analyses reveal that there are no significant differences of skin conductance responses among the groups when responses are considered over time. This non-significance over time, when looking at Figure 4 refers to the extension of time occurring as a result of repeated measures from the first stimulus interval "instructions" through the last stimulus interval slide 11. In other words, there is no significant difference among the groups from the first mean response interval to the last one.

Finger Blood Volume

An inspection of Figure 5 on Page 136 reveals that the mean response curves for finger blood volume, appear significantly different from one another. The mean trends for counselors and counselor trainees over time indicates an increase in vasoconstriction, whereas the mean trend for graduate science majors reflects an increase in vasodilatation. In Figure 5, millimeters in distance recorded from the reference point are shown on the vertical axis. This reference point was established as the edge of the tracking paper as described in Chapter IV on Page 121. These diverging trends among the response curves appear to indicate significant differences among the responses of the groups. Inspection of the baseline means for each group in Figure 5 seem to indicate that there is no significant difference among the groups.

Therefore, it was decided to compute an analysis of covariance with age as a covariate. Table 12 summarizes the sources of variation of an analysis of covariance of mean measures of finger blood volume responses among counselors, counselor trainees, and graduate science majors, with age as a covariate and baseline mean as data. There is a significant correlation (P less than .006) between the covariate age and the criterion measure, mean baseline. All

TABLE 12

SIGNIFICANCE OF DIFFERENCES IN BASELINE MEAN FINGER BLOOD VOLUME RESPONSES AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	13440.067	81	165.951		
Regression	1.035	1	1.035	.006	NS
Comparisons Among Criterion Groups	53.041	2	26.520	.160	NS
Comparisons Between Sexes	315.985	1	315.985	1.904	NS
Comparisons of Sex and Criterion Groups	509.711	2	254.856	1.536	NS

other differences for all sources of variation showed no significance. These results tended to support the above-mentioned conclusion derived from an inspection of the baseline means. However, as in the case of skin conductance measures, it was decided to do an analysis of covariance with baseline mean and age as covariates. Therefore, this analysis was performed in order to test for significant differences of the overall mean finger blood volume response measure among subject groups. Table 13 shows that differences were found to be significant at the .001 level when responses of graduate science majors were compared with the combined responses of counselors and counselor trainees. However, responses of counselor trainees were not found to be significantly different from counselors. There is a significant correlation (P less than .001) between the criterion measures of the overall mean and the covariates of baseline mean and age.

Inasmuch as there are statistically significant differences with age and baseline mean as covariates

TABLE 13
SIGNIFICANCE OF
DIFFERENCES IN OVERALL MEAN FINGER
BLOOD VOLUME RESPONSES AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	63575.554	80	794.694		
Regression	36668.063	2	18334.032	23.071	.001*
1. Do Graduate Science Majors Differ From Counselors and Counselor Trainees?	10883.325	1	10883.325	13.695	.001*
2. Do Counselor Trainees Differ From Counselors?	292.859	1	292.859	.369	NS
3. What Are Differences Among Subjects When Comparisons Between Sexes Are Made?	82.503	1	82.503	.104	NS
Comparisons of 1 in Terms of Sex	657.543	1	657.543	.827	NS
Comparisons of 2 in Terms of Sex	2514.341	1	2514.341	3.164	NS

*significant

when comparing the overall means of each group, it was decided to compute an analysis of covariance with baseline mean and age as covariates for the mean measures of finger blood volume responses of each of the 23 stimulus intervals. Using this approach, it would be possible to demonstrate statistically the precise intervals in which significant differences in responses occurred. Table 14 summarizes the sources of variation for one of 23 stimulus intervals, namely slide Number 11, whose means, upon inspection of Figure 5 seemed significantly different from each other among the groups. Table 14 shows that there is a significant correlation (P less than .001) between the covariates of age and baseline mean and the criterion measure slide 11.

In addition, comparisons among the criterion groups showed significant differences among these groups, P being less than .001. Comparisons of effects of interaction between males and females and between sex and criterion groups were not found to be significant.

TABLE 14

SIGNIFICANCE OF DIFFERENCES IN MEAN FINGER BLOOD VOLUME RESPONSES FOR ONE INTERVAL AMONG CRITERION GROUPS

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	146467.229	79	1854.016		
Regression	68775.826	2	34387.913	18.548	.001*
Comparisons Among Criterion Groups	35924.180	2	17962.090	9.688	.001*
Comparisons Between Males and Females	158.012	1	158.012	.085	NS
Comparisons of Sex and Criterion Groups	8424.705	2	4212.353	2.272	NS

*significant

Table 15 summarizes the probability levels of significance based upon the further analyses of covariance of mean finger blood volume responses across all 23 stimulus intervals using two factors as sources of variation, i.e., criterion groups and sex, with age and baseline mean as covariates. There is a significant correlation (P less than .001) between the covariates, age and baseline mean, and each of the criterion measures from "instructions" through slide 11. When the interval "instructions" and dialogue 1 are compared among groups, differences are not significant. All other intervals were noted as significant at P less than .010 to .001. When comparisons are made of males and females and the interaction effects between sex and the criterion groups, differences were found to be not significant. At the same time that mean skin conductance responses were reanalyzed by use of orthogonal polynomials, finger blood volume mean responses were also transformed in the same way and subjected to the same tests for significance. It was thought that a more

TABLE 15

LEVELS OF SIGNIFICANCE FOR TWENTY-THREE INTERVALS OF MEAN FINGER BLOOD VOLUME RESPONSES AMONG CRITERION GROUPS

Stimulus Points	Regression	Criterion Groups	Sex	Interaction of Sex and Criterion Groups
	P	P	P	P
Instructions	.001*	NS	NS	NS
Dialogue 1	.001*	NS	NS	NS
Slide 1	.001*	.010*	"	"
Dialogue 2	.001*	.001*	"	"
Slide 2	.001*	.001*	"	"
Dialogue 3	.001*	.001*	"	"
Slide 3	.001*	.001*	"	"
Dialogue 4	.001*	.002*	"	"
Slide 4	.001*	.002*	"	"
Dialogue 5	.001*	.002*	"	"
Slide 5	.001*	.001*	"	"
Dialogue 6	.001*	.005*	"	"
Slide 6	.001*	.001*	"	"
Dialogue 7	.001*	.001*	"	"
Slide 7	.001*	.001*	"	"
Dialogue 8	.001*	.001*	"	"
Slide 8	.001*	.001*	"	"
Dialogue 9	.001*	.002*	"	"
Slide 9	.001*	.001*	"	"
Dialogue 10	.001*	.002*	"	"
Slide 10	.001*	.001*	"	"
Dialogue 11	.001*	.001*	"	"
Slide 11	.001*	.001*	"	"

*significant

powerful test i.e., the use of orthogonal transformations, would provide more conclusive evidence of statistically significant differences among groups in terms of response curve trends particularly at "instructions" and dialogue 1.

Reported in Table 16 is a summary of tables showing tests of significance based upon multivariate analyses of covariance using the Wilks Lambda criterion and univariate F tests. According to the _Wilks Lambda Test_ shown in Table 16 there is a significant departure from the multivariate hypothesis (P less than .003). This hypothesis assumes that differences exist among the linear and quadratic variables and the covariates, age and baseline mean. These results indicate that there were significant differences among the variables (P less than .003). It is by means of the univariate F tests that differences between specific variables could be tested. The results of the univariate F tests shown in Table 16 indicate that there are significant differences among the linear trends (P less than .001). These results

TABLE 16

SIGNIFICANCE OF DIFFERENCES IN FINGER BLOOD VOLUME DATA TRANSFORMED INTO ORTHOGONAL POLYNOMIALS

	Tests of Significance Using Wilks Lambda Criterion				Univariate F Tests			
Test of Roots	F	DFHYP	DFERR	P	Variable	F(1,80)	Mean Square	P
1 Through 1								
1. Do Graduate Science Majors Differ From Counselors And Counselor Trainees?								
	6.116	2	79	.003*	Linear	12.261	34756.209	.001*
					Quadratic	3.227	1508.333	NS
2. Do Counselors Differ From Counselor Trainees?								
	.917	2	79	NS	Linear	.058	164.625	NS
					Quadratic	1.307	611.022	NS
A. Sex Comparisons								
	.188	2	79	NS	Linear	.091	257.572	NS
					Quadratic	.375	175.371	NS
1A.	.723	2	79	NS	Linear	1.287	3648.592	NS
					Quadratic	.686	320.555	NS
2A.	1.253	2	79	NS	Linear	2.523	7152.996	NS
					Quadratic	.532	248.882	NS

*significant

show that the mean points for each subject group's response curve deviate significantly from linearity. If attempt was made to fit a straight line to the response curves of each group, each straight line would have slopes that would differ more than would be expected to occur by chance. The quadratic trends of the curves for each group of subjects are not significantly different from each other. Thus, in terms of curve trends it was found that graduate science majors differ significantly from the average of the curves of counselors and counselor trainees combined. However, the response curves for counselors and counselor trainees do not differ significantly from each other.

Heart Rate

The procedure for treating the heart rate data was discussed in the preceding chapter on Page 120. Figure 6 on Page 137 shows the peak rate response curves for counselors, counselor trainees, and graduate science majors. The vertical axis shows the peak heart rate. Along the horizontal axis are the stimulus intervals. Plotted for each stimulus interval including the baseline, is the mean peak heart rate. Inspection of these data indicates that the curve for each group rises from the baseline as intervals are observed from it through slide 11. However, the trend for all curves shows close approximation and interlacing of one with another, which was considered evidence that the differences among the subject groups were not significant. Therefore, no statistical analyses were made for these data.

Respiration Rate

Figure 7 on Page 138 shows the respiration response curves for counselors, counselor trainees, and graduate science majors. Each stimulus interval along the horizontal axis is represented by the mean number of peaks represented on the vertical axis. Treatment of respiration scores has been explained in the preceding chapter on Page 120. Here again, as in the record for heart rate, a rise in the respiration response curve from baseline was observed. However, the close approximation and interlacing of all the curves was taken as evidence of non-significant differences among the three subject groups. Therefore, no statistical analyses were deemed necessary.

Cognitive Responses

The mean number of correct cognitive responses (answers to the eleven slide items) for each of the three subject groups, males, females, and all groups combined are summarized in Table 17. The total number of possible correct cognitive responses was 11, based upon 11 slides presented. As shown in Table 17, no group averaged more than 3 correct responses.

An analysis of covariance for each of the 11 cognitive correct responses was computed with age as a covariate. This analysis was used in order to determine whether there were statistically significant differences in terms of the average number of

TABLE 17

MEAN NUMBER OF CORRECT COGNITIVE RESPONSES FOR CRITERION GROUPS

Counselors Group 1	Males N=16	Females N=14	Total N=30
Mean =	2.9	2.5	2.7

Counselor Trainees Group 2	Males N=16	Females N=14	Total N=30
Mean =	2.5	3.3	3.0

Graduate Science Majors Group 3	Males N=26	Females N=4	Total N=30
Mean =	2.8	2.3	2.5

All Groups Combined	N=58	N=32	N=90
Mean =	2.7	2.7	2.7

correct cognitive responses given among the subject groups for each slide item presented. Statistical comparisons were made among the subject groups, between males and females, and as a result of interaction of all groups. Table 18 summarizes the probability levels of significance based upon these analyses. The only differences that were found to be significant were those resulting from comparisons of correct responses to slide 5 and 7. When comparisons are made between males and females for these two slides, the P's are .040 and .011 respectively. No significant differences were found for any of the other cognitive responses when comparisons were made.

An additional analysis of covariance was made using age as a covariate in order to determine which subject groups differed from another as to their respective mean total of correct cognitive responses. Tables 19, 20, and 21 show the comparisons made for five specific questions. Results show that no particular subject group differs significantly from another.

TABLE 18

SIGNIFICANCE OF DIFFERENCES IN AVERAGE CORRECT COGNITIVE RESPONSES AMONG CRITERION GROUPS FOR ELEVEN SLIDES

		Comparisons			
Measure Correct		Regression	Criterion Groups	Sex	Interaction of Criterion Groups and Sex
		P	P	P	P
Cognitive Response	1	NS	NS	NS	NS
Cognitive Response	2	NS	NS	NS	NS
"	3	"	"	"	"
"	4	"	"	"	"
"	5	"	"	.040*	"
"	6	"	"	NS	"
"	7	"	"	.011*	"
"	8	"	"	NS	"
"	9	"	"	"	"
"	10	"	"	"	"
"	11	"	"	"	"
Total Number of Correct Answers		"	"	"	"

*significant

TABLE 19

SIGNIFICANCE OF DIFFERENCES IN
TOTAL MEAN CORRECT COGNITIVE RESPONSES
AMONG CRITERION GROUPS FOR QUESTIONS ONE AND TWO

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	126.588	83	1.525		
Regression	.913	1	.913	.599	NS
1. Do Counselors Differ From Counselor Trainees And Graduate Science Majors?	.045	1	.045	.029	NS
2. Do Counselor Trainees Differ From Graduate Science Majors?	.511	1	.511	.335	"
Comparisons of 1 and 2 Combined in Terms of Sex	.096	1	.096	.063	"
Comparisons of 1 in Terms of Sex	1.579	1	1.579	1.035	"
Comparisons of 2 in Terms of Sex	4.488	1	4.488	2.943	"

TABLE 20

SIGNIFICANCE OF DIFFERENCES IN TOTAL MEAN CORRECT COGNITIVE RESPONSES AMONG CRITERION GROUPS FOR QUESTIONS THREE AND FOUR

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	126.588	83	1.525		
Regression	.913	1	.913	.599	NS
3. Do Graduate Science Majors Differ From Counselors And Counselor Trainees?	.444	1	.444	.291	NS
4. Do Counselor Trainees Differ From Counselors?	.015	1	.015	.010	"
Comparisons of 3 and 4 Combined in Terms of Sex	.096	1	.096	.063	"
Comparisons of 3 in Terms of Sex	.037	1	.037	1.335	"
Comparisons of 4 in Terms of Sex	3.980	1	3.980	2.609	"

TABLE 21

SIGNIFICANCE OF DIFFERENCES IN TOTAL MEAN CORRECT COGNITIVE RESPONSES AMONG CRITERION GROUPS FOR QUESTIONS FIVE AND SIX

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	P
Within Cells	126.588	83	1.525	.599	
Regression	.913	1	.913	.161	NS
5. Do Counselor Trainees Differ From Counselors And Graduate Science Majors?	.245	1	.245	.147	NS
6. Do Counselors Differ From Graduate Science Majors?	.225	1	.225	.063	"
Comparisons of 5 and 6 Combined in Terms of Sex	.096	1	.096	3.818	"
Comparisons of 5 in Terms of Sex	5.822	1	5.822	.170	.054*
Comparisons of 6 in Terms of Sex	.259	1	.259		NS

*significant

Response Latency

In addition to the cognitive and physiological findings reported above, measures of response latency were derived in this study. As described in Chapter IV on Page 123 a period of response latency was taken as a time lapse from the onset of a slide to the point at which an oral response was elicited. This time lapse was recorded as distance in millimeters on the graph. Figure 8 on Page 140 shows the response curves for the three criterion groups. Each interval on the horizontal axis represents the mean latency of response for each respective group. The vertical axis provides the distance in millimeters for plotting the mean interval points. Inspection of the data in Figure 8 indicates that no group's response curve remains consistently separate from another over the entire eleven latency intervals. However, distinct separations at intervals 1, 4, 5, 6, 8, and 9 suggested that possible statistically significant differences among subject groups may have existed at these points. Therefore, analyses of covariance were computed for the eleven latency response intervals with age as a covariate. Table 22 provides a summary of probability levels for each of these intervals when each of the subject groups was compared. Significant correlations were found between the covariate age and the criterion measures of latency intervals 4, 5, 7, 8, and 10 at levels of significance ranging from .001 to .041. The only other differences found significant are of comparisons among the criterion groups for latency intervals 5-8 at levels of significance ranging from .003 to .030.

Correlations

After a thorough analysis of both cognitive and non-cognitive variables, it was of interest to determine what possible relationships existed between the measures of those variables investigated which were closely related to the affective and cognitive components of empathy. Therefore, a correlational analysis was made between the means of each physiological

TABLE 22

LEVELS OF SIGNIFICANCE FOR ELEVEN LATENCY RESPONSE MEASURES AMONG CRITERION GROUPS

	Comparisons			
Measure	Regression	Criterion Groups	Sex	Interaction of Sex and Criterion Groups
Latency 1	NS	NS	NS	NS
Latency 2	NS	NS	NS	NS
Latency 3	NS	"	"	"
Latency 4	.041*	"	"	"
Latency 5	.004*	.022*	"	"
Latency 6	NS	.003*	"	"
Latency 7	.005*	.030*	"	"
Latency 8	.001*	.005*	"	"
Latency 9	NS	NS	"	"
Latency 10	.012*	NS	"	"
Latency 11	NS	"	"	"

*significant

measure, namely, skin conductance (GSR), finger blood volume (FBV), heart rate (HR), and respiration rate (RR), and the mean for cognitive correct responses for all ninety subjects. Correlations were computed for all subjects combined, counselors, counselor trainees, graduate science majors and for males and for females of all groups. The correlation coefficients for this analysis are shown in Table 23. An inspection will show that there is no significant relationship between the cognitive and the physiological measures.

Summary

The results reported in this chapter were obtained by means of overall, point-to-point, and trend analyses of the data. Subject groups were found to be significantly different from one another in age. Counselors were found to be the oldest, counselor trainees next and graduate science majors the youngest. In terms of the physiological variables, no significant differences were found among the

TABLE 23

CORRELATIONS BETWEEN MEANS OF PHYSIOLOGICAL VARIABLES AND OF CORRECT COGNITIVE RESPONSES AMONG CRITERION GROUPS

Variable	Correlation Coefficients For Defined Groups					
	Counselors	Counselor Trainees	Graduate Science Majors	Males	Females	All Subjects
	N=30	N=30	N=30	N=54	N=36	N=90
(GSR) Skin Conductance	.128	.252	.210	.040	.040	.041
*(FBV) Finger Blood Volume	.122	.112	.270	.167	.113	.140
(HR) Heart Rate	.283	.197	-.155	.146	.008	.098
(RR) Respiration Rate	.200	.089	-.089	.010	.177	.069

*Because of mechanical difficulties in data collection for this variable: female N=34, counselors N=29, counselor trainees N=29 groups when measures of skin conductance, heart rate and respiration rate were analyzed. However, when measures of finger blood volume were analyzed counselors and counselor trainees differed significantly from graduate science majors. There were no significant differences among the groups for cognitive and latency response measures. Correlations between the cognitive responses and each of the physiological measures revealed no significant relationship. Thus, hypothesis one was supported beyond the five percent level only in terms of measures of finger blood volume. Hypothesis number two was supported beyond the five percent level in terms of all cognitive responses.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This concluding chapter incorporates a general review of the study and provides three major conclusions followed by a discussion and interpretation of them in light of the findings. The section of the chapter dealing with recommendations provides suggestions for further research relating to the problems posed as a result of this investigation.

Summary

The problem of this study was to determine whether or not counselors are demonstrably different from non-counselors in terms of a selected dimension of behavior, empathy. The concept of empathy was analyzed and translated into an operational variable consisting of an affective (tonal) component and a cognitive (perceptual) component. The purpose of the study was to measure these components as potentials for distinguishing counselors from non-counselors.

Eleven items, judged as affect-laden by two rater groups (six counselor educators and three doctoral students), were selected from the Squires Empathy Test.[1] Subjects consisting of thirty counselors, thirty counselor trainees and thirty graduate science majors were then randomly sampled before selection and tested individually. Each item presented to a subject was composed of a tape recorded dramatic excerpt followed by its appropriate slide of six pictures. All items were taken from a variety of television plays.

The affective component of empathy, tone, was assessed by obtaining four physiological measures of changes in skin conductance (GSR), finger blood volume (FBV), heart rate (HR) and respiration rate (RR) from each subject as he reacted to each test item. The cognitive component of empathy, perception, was assessed by obtaining oral response measures of the subject's interpretation of the slide presented to him. An additional measure of latency of response was also obtained. All physiological measures were obtained simultaneously during the entire item presentation and response period.

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[1] Samuel I. Squires, "The Construction of a Test Designed to Measure Aesthetic Perception of Televised Drama," (unpublished Ed.D. dissertation, Boston University, 1956), in Dissertation Abstracts, XVIII (January-May, 1957), p. 307.

The hypotheses tested were: (1) there are significant differences among the affective responses of counselors, counselor trainees and graduate science majors (2) there are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors. The five percent level of confidence was used in all tests of the significance of differences.

Overall, point-to-point and trend analyses of the data were made by use of simple, covariate and multivariate analyses of variance. Findings indicated that there were no significant differences among the subject groups in terms of three physiological variables namely, skin conductance (GSR), heart rate (HR) and respiration rate (RR). However, in respect to changes in finger blood volume (FBV), significant differences were found among the groups. There were no significant differences among the groups in terms of cognitive and response latency measures. Thus, hypothesis one was accepted beyond the five percent level only in terms of physiological changes in finger blood volume. Hypothesis two was accepted beyond the five percent level for all cognitive responses.

Conclusions

It can be said at the outset that the conclusions expressed below are not necessarily applicable beyond the scope of this study. The problem of determining whether or not counselors in general are demonstrably different from non-counselors in terms of the selected dimension of empathy may still remain unsolved. However, in light of the findings reported and the basic assumptions made in this study, the following conclusions appear reasonable:

1. The empathic behavior of counselors is different from non-counselors in respect to changes in finger blood volume.
2. Counselors can not be differentiated from non-counselors in respect to the other physiological variables assessed in this study.
3. Counselors and non-counselors do not differ in their ability to perceptualize in empathic situations.

Discussion of Conclusions

Physiological changes in finger blood volume have been understood to be highly sensitive measures.[2] Therefore, it seems reasonable to conclude that findings resulting from finger blood volume measurements are evident even though no significant differences were found in respect to the other physiological response measures among the subject groups. At first, it appeared somewhat surprising that response measures of changes in skin conductance (GSR), heart rate (HR) and respiration rate (RR) among the subject groups did not reflect patterns consistent with changes in finger blood volume. However, Sternbach[3] reports that in his study of autonomic nervous system responses of children to the motion picture Bambi, there was a lack of consistency in each of the physiological variable response patterns recorded. He also indicated that these inconsistencies were evident in other studies. Therefore, the response patterns of physiological variables report in this study seemed not unexpected. Examination of the response measures of skin conductance, heart rate and respiration indicates that actual clear subject responses and not artifactual measures were recorded. That is to say records obtained were measures of autonomic responses not physical conditions external to the subject such as faulty equipment. This interpretation is substantiated when observation is made of the response patterns of all variables for each subject group from baseline mean to "instructions." A rise in the level of activation is noticeable regardless of the leveling response trends beyond "instructions." The question of why response measures of skin conductance, heart rate and respiration rate among the subject, groups showed no significant differences seems at this time unanswerable in any complete sense. Perhaps Sternbach's comments concerning stimulus-response specificity offer some insight toward answering the question above when he states:

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[2] Richard A. Sternbach, Principles of Psychophysiology (New York: Academic Press, Inc., 1966), p. 69.

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[3] Richard A. Sternbach, "Assessing Differential Autonomic Patterns in Emotions," Journal of Psychosomatic Research, VI (September, 1962), p. 90.

> ... Starting with any relaxed, resting subject, virtually any sort of stimulus will produce activation, and activation is a relative preponderance of responses in a sympathetic-like direction. But not all stimuli produce the same responses, so that really there are several kinds of activation, at least. They differ among themselves in the amount of change in the sympathetic nervous system direction, and in some situations some variables will show

> a change in the opposite (apparent
> parasympathetic nervous system)
> direction ....[4]

Certainly it is not possible to conclude that the basic assumption of this study has been substantiated, namely, that counselors in general manifest a greater degree of empathy than counselor trainees or graduate science majors. However, within the limitations of this study the sample of counselors tested has produced a response pattern distinct from those of graduate science majors in terms of finger blood volume measures. Furthermore, when age and baseline mean were covaried, the finger blood volume response measures of counselors and counselor trainees were not found to be significantly different from each other. However, both counselor and counselor trainee response measures were significantly different from those of the graduate science majors. In a sense, then, might it be possible to say that, in the case of finger blood volume measures, covariance of age and baseline mean provide supporting evidence that there were really differences between counselors and non-counselors? If this is concluded, it seems quite clear that within the limits of the sample population tested, counselor responses in finger blood volume measures, a physiological correlate of affect, were found to be distinct from non-counselor finger blood volume response measures.

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[4] Sternbach, Principles of Psychophysiology, p. 93.

There appear to be two possible explanations as to why counselors showed significant differences in the direction opposite to graduate science majors. Ordinarily, the sympathetic nervous system responds to arousal or emergency states by such reactions as increased respiration rate and heart rate accompanied by peripheral vasoconstriction. If this pattern is used to interpret the response pattern of finger blood volume response measures among the groups in this study, it could be said that the counselors were really more aroused and possibly they expressed a greater degree of empathic response.

However, a second explanation of the sympathetic nervous system reaction is worth considering. For example, in cases of arousal or stimulation as a result of embarrassment, sympathetic nervous system responses reflect vasodilatation as evidenced by "blushing." If this interpretation is accepted, what appears as relaxation of the graduate science majors (increased vasodilatation) might be taken as really an increase in the empathic tonal component of affect. This is not to say that the "blushing" experience is necessarily one of embarrassment but merely that the phenomenon of vasodilatation may occur for some psychological reason or reasons explainable in terms other than that of relaxation. If this latter interpretation were accepted, the conclusion might be that the counselor group is more "depersonalized" in their feelings towards others, that is physiologically at least, they were not revealing empathic response behavior. Would this mean, then, that the counselor group, by virtue of its training and experience, is somewhat professionally "insulated" from expressing feelings because of the types of interpersonal case situations they frequently encounter in counseling settings? More likely, considering observations and conditions of the experimental setting and the subjective comments of subjects before and after the testing situation, the counselors were somewhat more subtly impressed or intimidated than the graduate science majors by the experimental environment. The entire idea of whether one of the subject groups is more depersonalized, relaxed or even intimidated raises the whole problem of implicit sets in that:

> ... those variables in the subject which predispose him to perceive or act in a certain way (implicit sets) ... are likely to influence the response variable which we are interested in measuring ... implicit sets are rarely verbalized. They may be points of view the subject brings with him to the laboratory ....[5]

This problem is, as yet, difficult to overcome. However, in this study, attempt was made to control the testing climate by employing, in a consistent manner, two periods of orientation as described earlier.

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[5] Sternbach, p. 127.

The second hypothesis states that there are no significant differences among the cognitive responses of counselors, counselor trainees and graduate science majors. The fact that no subject attained an average close to fifty percent correct of the total number of correct answers for the test, poses an interesting question. Is it fair to say that there has been a valid assessment of the perceptual component of empathy even though such a low average number of correct cognitive responses have been given? In one sense, the answer is yes. As long as all the subjects responded to items accepted, as assessing the perceptual component of empathy provided in the Squires Test, an evaluation of the scores could be made. However, in another sense, the items to which subjects responded were based upon simulated life situations. Each subject was able to interpret what he felt was being experienced by the characters portraying each dramatic excerpt. Yet, a subject could react to any of the test items somewhat indifferently and select answers merely by guessing haphazardly because he recognized the test as reflecting drama rather than real life or because he could not see the slide too well, or because he had to respond in a rather limited time knowing that there was a dialogue soon to follow. It seems that the limited time factor might be a most likely reason for a subject selecting an answer the way he did, in that the original Squires Test was of a paper and pencil form and untimed. In this way it may have provided a respondent adequate time for intellectualizing or perceptualizing in an empathic manner. The time provided for responding to each slide in this study was thirty seconds. Measures of response latency indicate that, except for slide 1 and slide 6, no subject responded before waiting between 16 to 22 seconds. This might be construed to mean, that each subject was consciously attending to the slide stimulus in preparation to give his oral response. These periods of latency might have been indications of a serious intent upon the part of the subject to perceptualize, but lack of time prohibited him from more accurate intellectualization. Hence, the subjects may have guessed more and thus the low average number of correct responses resulted.

Recommendations

In view of the problem presented, the findings reported, and the conclusions drawn from this study, the following recommendations are offered:

1. Research involving measures of physiological response patterns should be continued in an attempt to ascertain differences between counselor and non-counselor behavior by using other non-counselor sample groups than graduate science majors.
2. This study might be replicated with an additional sample of subjects who express interest in counseling as a career but who are not yet committed to nor involved in any aspect of

counselor education.

3. The use of a more arousing stimulus for assessing empathy should be developed in order to obtain more distinctive physiological response patterns and meaningful cognitive measures.
4. As an attempt to validate tests of empathy, correlational studies might be made between measures taken from personality inventories which assess empathic characteristics of behavior and physiological measures obtained while responding to these inventories.
5. By means of telemetry, measures of autonomic response patterns of counselors might be obtained while each counselor is in an actual counseling setting rather than in a simulated one.

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APPENDIX

RATING SCALE OF DEGREES OF EMOTION FOR PICTURE SETS OF THE SQUIRES EMPATHY TEST

DIRECTIONS: (picture set = a combination of audio-visual stimulus situations.)

A. Each item below applies to one set of six pictures. Please judge each set of pictures according to the degree of emotion you feel it arouses. Be sure to mark only one degree for each item. Place an X in the box which expresses the appropriate degree of emotion. It is essential that every line be used.

B. The space for comments is provided for noting your overall reaction to the set of pictures.

C. After you have rated each set of pictures, please rank each item according to which possesses the highest degree of feeling. Starting with the Number 1 as highest, indicate your choices in the column at the left of the items.

D. Rank items in Part I as one group and items in Part II as another group.

PART I

SQUIRES TEST ITEMS	RANK ORDER OF ITEMS		NONE does not arouse any feeling	WEAK does stimulate but very little	SLIGHT does arouse significant feelings	STRONG does arouse vigorous feelings	EXTREME does excite powerful feelings	COMMENTS (overall reaction)
(1 – 2)	______	1.	☐	☐	☐	☐	☐	______________
(3 – 4)	______	2.	☐	☐	☐	☐	☐	______________
(5 – 6)	______	3.	☐	☐	☐	☐	☐	______________
(7 – 8)	______	4.	☐	☐	☐	☐	☐	______________
(9 – 10)	______	5.	☐	☐	☐	☐	☐	______________
(11 – 12)	______	6.	☐	☐	☐	☐	☐	______________
(13 – 14)	______	7.	☐	☐	☐	☐	☐	______________
(15 – 16)	______	8.	☐	☐	☐	☐	☐	______________
(17 – 18)	______	9.	☐	☐	☐	☐	☐	______________
(19 – 20)	______	10.	☐	☐	☐	☐	☐	______________
(21 – 22)	______	11.	☐	☐	☐	☐	☐	______________
(23 – 24)	______	12.	☐	☐	☐	☐	☐	______________
(25 – 26)	______	13.	☐	☐	☐	☐	☐	______________
(27 – 28)	______	14.	☐	☐	☐	☐	☐	______________
(29 – 30)	______	15.	☐	☐	☐	☐	☐	______________
(31 – 32)	______	16.	☐	☐	☐	☐	☐	______________
(33 – 34)	______	17.	☐	☐	☐	☐	☐	______________
(35 – 36)	______	18.	☐	☐	☐	☐	☐	______________
PART II								
(1 – 6)	______	1.	☐	☐	☐	☐	☐	______________
(7 – 12)	______	2.	☐	☐	☐	☐	☐	______________
(13 – 18)	______	3.	☐	☐	☐	☐	☐	______________
(19 – 24)	______	4.	☐	☐	☐	☐	☐	______________
(25 – 30)	______	5.	☐	☐	☐	☐	☐	______________
(31 – 36)	______	6.	☐	☐	☐	☐	☐	______________
(37 – 42)	______	7.	☐	☐	☐	☐	☐	______________

UNIVERSITY OF MIAMI

AUTHORIZATION FOR PARTICIPATION IN AN INVESTIGATIVE STUDY

IDENTIFICATION OF RESEARCH PROJECT: GRANT NO. OEG-2-7-070007-3031

PRINCIPAL INVESTIGATOR: Dr. Lewis E. Walton GRANTING AGENCY: USOE - HEW

PROJECT DIRECTOR: Murray I. Gellen

Place of signing: DEPT. OF PSYCHOLOGY (MERRICK 213 P)
(Name of hospital, laboratory, etc.)

I hereby consent to the participation of ______________________________
(Name of individual)

in an investigational study requiring the following:

Watching pictures and listening to dramatic dialogues.

It has been explained to me that the study is being conducted for investigational purposes. The explanation of the study on the reverse side hereof* has been read by me and also the reason for the study, the risks involved, and the care that will be exercised to avoid complications have been explained to me. I acknowledge that no guarantee or assurance as to the therapeutic value of these studies can be made.

PARTICIPATING INDIVIDUAL:______________________________ DATE: __________

WITNESS: ______________________________ DATE: __________

Address of Witness: DEPT. OF EDUCATION, UNIVERSITY OF MIAMI, CORAL GABLES, FLA.

ATTEST: ______________________________ DATE: __________
(Signature of Principal Investigator)

STUDENT'S IDENTIFICATION:

Name: ______________________________
Last, first, middle)

DATE OF BIRTH: ______________ HOME ADDRESS:______________________________

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*PLEASE SEE THE REVERSE SIDE OF THIS SHEET FOR THE EXPLANATION

OF STUDY STATEMENT MENTIONED ABOVE.

The purpose of this research is to study the reactions of people to a variety of life situations presented in the form of pictures and word descriptions and to relate such reactions to a dimension of personality. The responses you give cannot be identified with you as an individual so that complete anonymity is assured.

There are no hazards of any type which are uniquely related to this experiment. The consent form is required only because the experiment is conducted using funds from a federal agency which requires such consent for all investigations.

UNIVERSITY OF MIAMI
CORAL GABLES, FLORIDA 33124

SCHOOL OF EDUCATION

September 1, 1967

Dear

I would like to take this opportunity to thank you for having participated in my research project. Although the data is presently being analyzed and compiled, I intend to send you an abstract of the final report upon completion of the study.

However, please accept the enclosed honorarium as an expression of my appreciation for your co-operation.

Sincerely,

Murray I. Gellen
OEG-2-7-070007-3031

nsw

Enclosure

UNIVERSITY OF MIAMI
CORAL GABLES, FLORIDA 33124

SCHOOL OF EDUCATION

May 20, 1968

Dear

Again, I would like to express my gratitude to you for having participated in my research project.

Enclosed is a copy of the abstract of the final report which I promised to send you upon completion of the study.

Sincerely,

Murray I. Gellen
OEG-2-7-070007-3031

nsw

Enclosure

VITA

Murray Irving Gellen was born in Northampton, Massachusetts, on October 10, 1925. His parents are Lillian Elizabeth Gellen and the late Samuel H. Gellen. He is married to the former Joan Carol Turtle and has two children Susan and David. He received his elementary education in Springfield, Massachusetts, and completed his secondary education at Middletown High School, Middletown, Connecticut, in 1943. During World War II he served as a medical laboratory technologist, Pharmacist's Mate 3rd Class, in the U.S. Navy and was honorably discharged in June, 1946. He received his Bachelor of Arts degree from the University of Connecticut and the degree of Master of Education from the University of Miami as of August 28, 1954. During the year of 1955 he served as a teacher for the American Dependent School under the Department of the Air Force at Mildenhall, England. Upon his return to the United States he resumed teaching in the Dade County, Florida, public school system. His fourteen years of professional experience have included teaching at the elementary, secondary and college levels as well as three years of high school counseling.

He did advanced graduate study at Teachers College, Columbia University and completed his doctoral study at the University of Miami where he was awarded the degree of Doctor of Education as of June 5, 1968. He was a recipient of the Valley Forge Freedoms Foundation Classroom Teachers Award as of 1961 and is a member of Phi Delta Kappa.

Permanent address: 19222 NW 23 Court, Opa Locka, Florida.

OE 6000 (REV. 9-66)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

ERIC REPORT RESUME

ERIC ACCESSION NO.

CLEARINGHOUSE ACCESSION NUMBER

RESUME DATE 05-28-68

P.A.

T.A.

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TITLE

A COMPARISON OF A SELECTED DIMENSION OF COUNSELOR AND NON-COUNSELOR BEHAVIOR (FINAL REPORT)
Formerly titled at submission of the proposal: An Exploratory Study of a Selected Dimension of Counselor and Non-Counselor Behavior

PERSONAL AUTHOR(S)

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INSTITUTION (SOURCE)

University of Miami, Coral Gables, Florida, School of Education

SOURCE CODE

REPORT/SERIES NO.

OTHER SOURCE

SOURCE CODE

OTHER REPORT NO.

OTHER SOURCE

SOURCE CODE

OTHER REPORT NO.

PUB'L. DATE 04-30-68

CONTRACT/GRANT NUMBER OEG 2-7-070007-3031

PAGINATION, ETC.

208 pp.

RETRIEVAL TERMS

IDENTIFIERS

ABSTRACT

An attempt was made to determine whether or not counselors are demonstrably different from non-counselors in terms of a selected dimension of behavior, empathy, operationalized into two components. Eleven items judged as affect-laden by two rater groups were selected from the Squires Empathy Test. Thirty counselors and thirty counselor trainees (constituting the counselor group) and thirty graduate science majors (constituting the non-counselor group) were tested individually. Each item presented to a subject was composed of a tape recorded dramatic excerpt followed by its appropriate slide of six pictures. All items were taken from a variety of television plays. An affective (tonal component) of empathy was assessed by obtaining four physiological measures of skin conductance, finger blood volume, heart rate, and respiration rate from each subject as he reacted to each test item. A cognitive (perceptual) component was assessed by obtaining oral response measures of a subject's interpretation of the slide presented to him. Overall, point-to-point and trend analyses of the data were made by use of simple, covariate and multivariate analyses of variance. Findings supported a first hypothesis that there are significant differences among the affective responses of each subject group only in terms of changes in finger blood volume. A second hypothesis that there are no significant differences among the cognitive responses of subject groups was also supported.